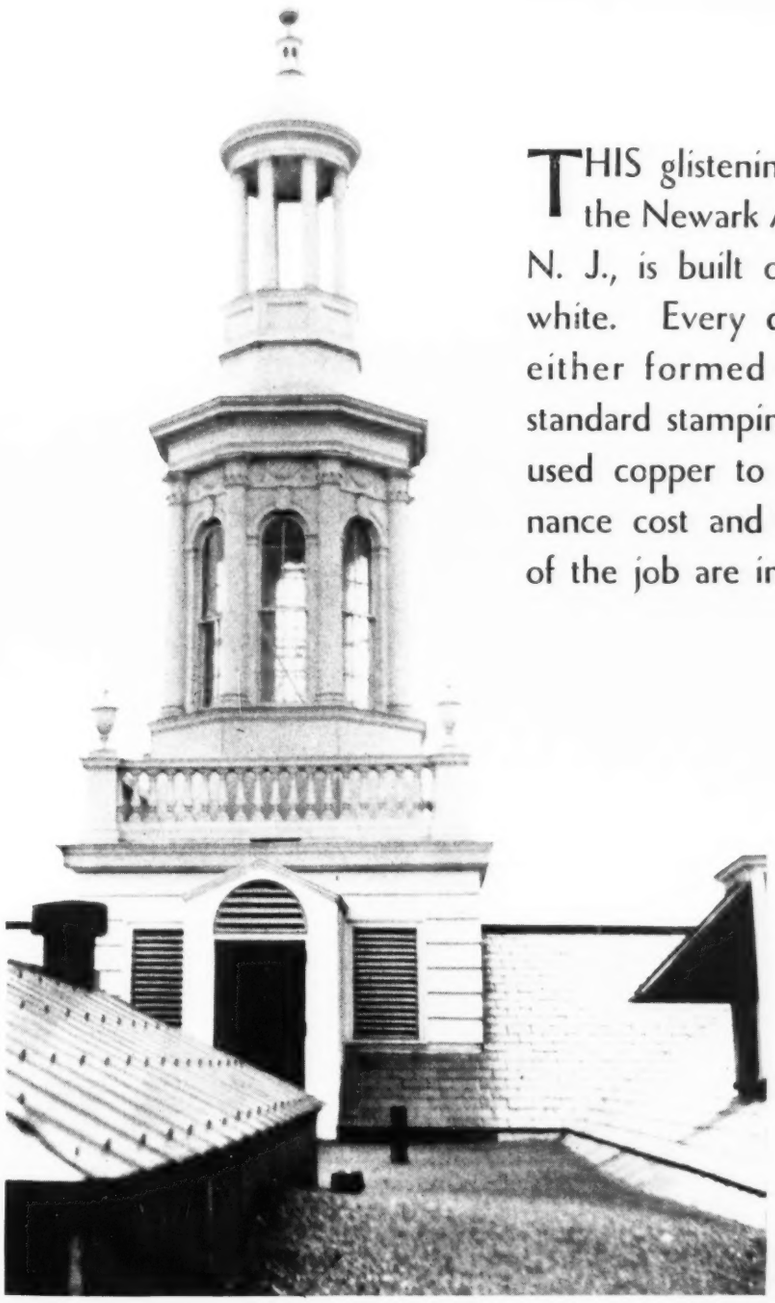
American Artisan

THE WARM AIR HEATING AND SHEET METAL JOURNAL

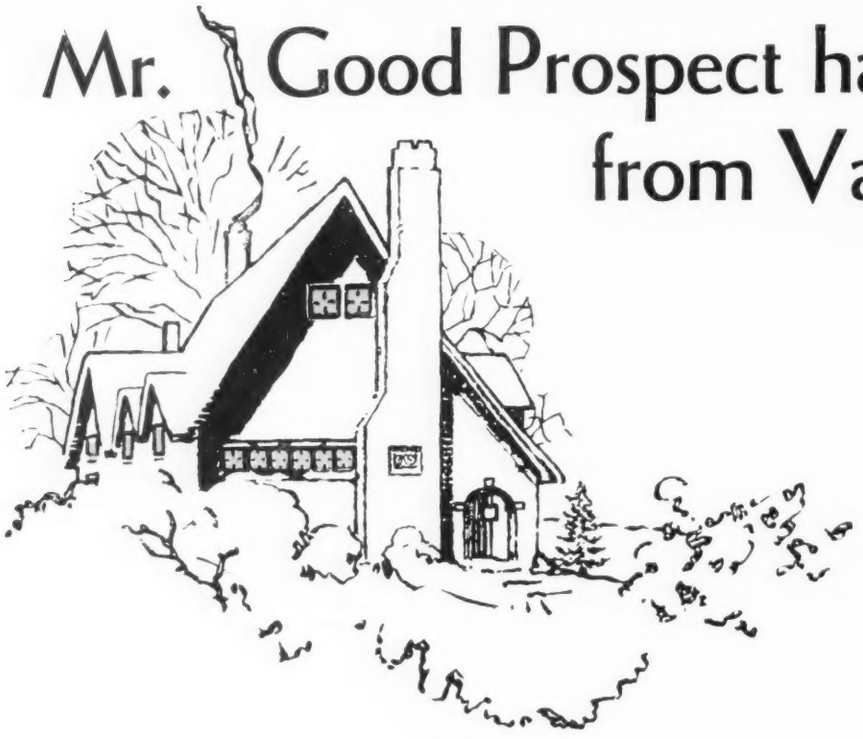
FOUNDED 1880



THIS glistening white tower on the Newark Academy, Newark, N. J., is built of copper, painted white. Every delicate detail was either formed of copper or is a standard stamping. The architects used copper to eliminate maintenance cost and troubles. Details of the job are in this issue.

AUGUST 30, 1930

Mr. Good Prospect has returned from Vacationland



AND—
he is ready to think of increased winter comfort for his family

BACK home, feeling fresh and fit. You know how you feel after a pleasant holiday. Conditions left neglected, perhaps intentionally, stare you in the face but you are ready now to do something about making everything ship-shape.

So it is with Mr. Good Prospect—he is seeing not only his business but his home problems with a clearer eye. He's ripe for you to call on right now.

BUT don't call on this type of prospect with half a story—he can't be sold anything but the most modern and high quality heating equipment.

But he's worth selling—he'll want a high grade, modern heater, a Heat Regulator, Automatic Humidifier, a Furnace Fan or Blower, and perhaps an Air Washer or Filter and surely the neatest looking, most efficient installation possible if you tell him the story of ***Modern Warm Air Heating.***

We advise you to go after this type of business because Success dealers find that with Success Heaters they readily sell the highest type of Warm Air Heating to those who can pay for the best.

Unquestionably quality installations will net you more profit than the balmiest quantity installation season imaginable. Success dealers prove it—and we can prove it to you.

The "Big Success Idea" will help YOU—write for it today

SUCCESS HEATER MANUFACTURING COMPANY
Des Moines, Iowa

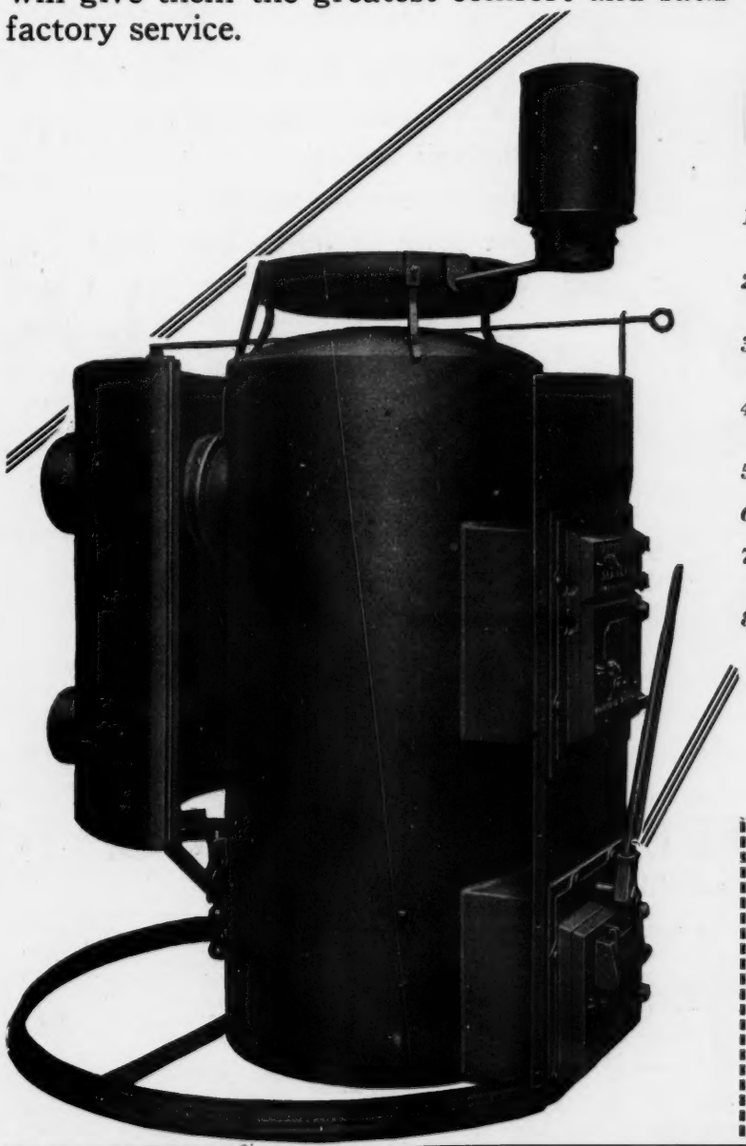
SUCCESS HEATERS

30

Take a Look Inside the Casing—

HEATING systems, like automobiles, are different "under the hood." You can't judge a furnace by the casing—you must see what is on the inside, how it is made and how efficiently it functions.

Thinking people today want more than a "good looking" furnace—they want one that will give them the greatest comfort and satisfactory service.



8 Reasons Why The WATERBURY Gives Greatest Satisfaction

1. ***Exclusive Waterbury Features.*** No other heating system has all the Waterbury advantages.
2. ***Construction.*** Extra heavy all-steel construction, acetylene-welded permanently gas-tight.
3. ***Health and Comfort.*** Gas-tight construction and adequate humidifier insure pleasant, healthful, comfortable heat.
4. ***Easily Operated.*** Requires minimum attention and maintains an even temperature with a moderate fire.
5. ***Economical.*** Scientific design assures greatest fuel efficiency.
6. ***Burns Any Fuel.*** Hard coal, soft coal, coke, gas, or oil can be used.
7. ***Long Service.*** Sturdy construction assures added years of service. Guaranteed 10 years and lasts much longer.
8. ***Low Maintenance Cost.*** All-steel, one-piece construction assures practically no repair expense for life of furnace.

The Waterbury Franchise is a profitable one for live dealers. Send coupon below for complete information.

The Waterman-Waterbury Co.
1122 Jackson St., N. E., Minneapolis, Minn.

Please send me complete information about the Waterbury Franchise.

Name.....

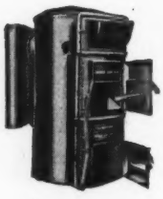
Address.....

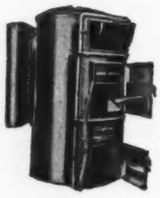
City..... *State*.....

Published Every Other Week by Porter, Spofford, Langtry Corp., 139 North Clark Street, Chicago, Illinois. AMERICAN ARTISAN—the Warm Air Heating and Sheet Metal Journal—entered as second class matter, January 29, 1930, at the Post Office at Chicago, Illinois, under the act of March 3, 1879. Formerly entered on June 25, 1887, as American Artisan and Hardware Record.

INDEX PAGES—22 and 58 **[VOL. 99, NO. 18—$2.00 PER YEAR]** **BUYERS' DIRECTORY—54 and 56**

Will the Winter Rush Catch You Unprepared?





WITH the brisk days of autumn and early winter, business will stir from its summer slumber—stretch a bit—and get down to work. ***Busy times are just ahead.***

Wise furnace dealers are polishing their displays—looking forward to a busy season. Now is a time of preparation for rushing winter days.

Let the Western Steel Furnace help you to better profits.

Write for information

WESTERN STEEL PRODUCTS CO.

130 Commonwealth Ave.—Duluth, Minn.

Group One

Pittsburgh, Pa. — *Pittsburgh Furnace Parts Company*
Ravenna, Ohio — *Ravenna Furnace Company*
Cincinnati, Ohio — *Niehaus Furnace Repair Company*
Atlanta, Ga.—*Moncrief Furnace Company*
Chicago, Ill.—*Western Steel Products Company*

Group Two

St. Louis, Mo.—*MacRoy Supply Co.*
Kansas City, Mo.—*Kansas City Furnace Co.*
Duluth, Minnesota—*Marshall-Wells Co.*
Omaha, Nebraska—*A. Y. McDonald Mfg. Co.*
Lincoln, Nebraska—*A. Y. McDonald Mfg. Co.*
Sioux City, Iowa—*A. Y. McDonald Mfg. Co.*
Minneapolis, Minn.—*A. Y. McDonald Mfg. Co.*
Fort Dodge, Iowa—*Leighton Supply Co.*
Fargo, N. D.—*Fargo Cornice & Ornament Co.*

Group Three

Seattle, Wash. — *McPherson Furnace & Equipment Co.*
San Francisco, Cal.—*Pacific Sheet Metal & Furnace Co.*
Winnipeg, Man. — *Marshall-Wells Co.*
Saskatoon, Sask. — *Wood-Vallance Co., Ltd.*
Regina, Sask. — *Wood-Vallance Co., Ltd.*
Edmonton, Albta.—*Marshall-Wells Alberta Co., Ltd.*

Say you saw it in AMERICAN ARTISAN—Thank you!

1 WARM AIR FURNACE

Specially designed with heat economizer. Strong, sturdy construction.

2 AUTOMATIC OIL-BURNER

The burner is the famous Piatt, designed particularly for the furnace and built into it. It is simple in construction, positive in operation, thoroughly safe and dependable.

3 FORCED AIR BLOWER

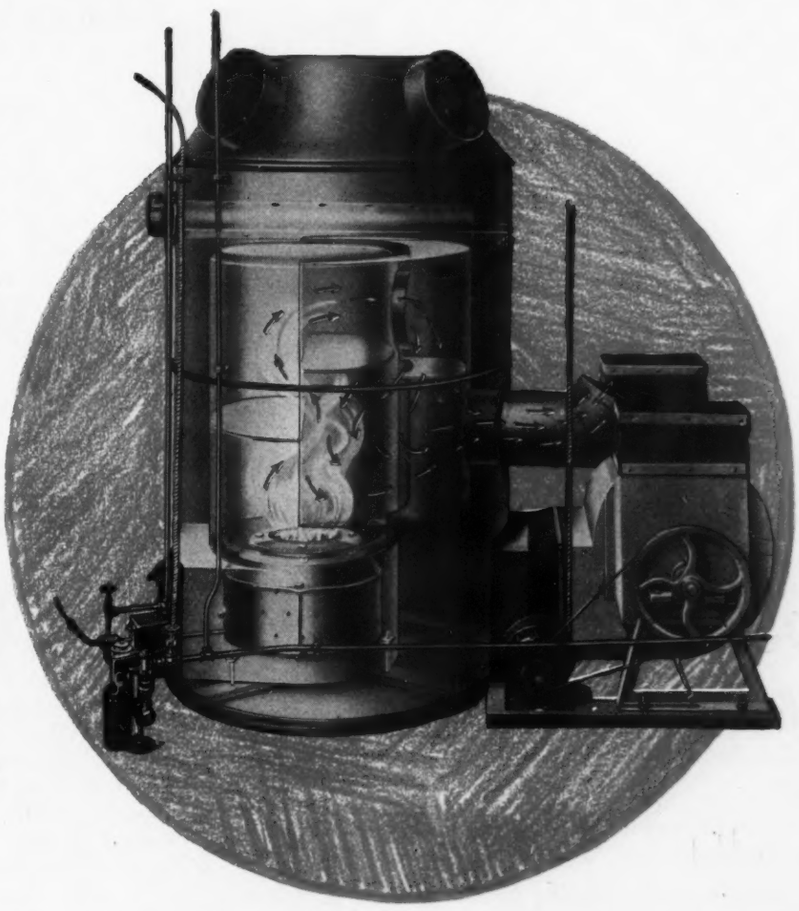
Carries a current of warm air into every corner in Winter, stirs up cool air currents in the hot months of Summer.

4 HUMIDIFIER

Keeps the air properly moistened for health as well as warmth; protects furniture.

5 THERMOSTAT

Accepted type of Thermostat, automatic in action, thoroughly reliable.



ALL IN ONE UNIT

All for the price of a good Oil-Burner alone

Sheet Metal Men, here is your chance to build immediate and permanent profits with this revolutionary new heating plant—the heating sensation of the century.

The various parts are not in any sense attachments but the whole scientifically designed and built as a complete heating unit. Each part is calculated with precision to work perfectly in relation to the complete assembled plant. Smaller heat-conductor pipes may be used with a resulting gain in headroom. The furnace need not occupy the middle of the cellar and thereby additional space is readily made available.

An air circulating blower keeps a flow of warm, moist air circulating through all registers and all corners in the wintertime. It can be used to circulate air in the summer. The Piatt is considered the heating sensation of the century. Examine its construction closely, send for complete technical data which will be gladly furnished.

MOTOR WHEEL CORPORATION, Heater Division, LANSING, MICHIGAN

BURN OIL

SAVE TOIL

PIATT

DOMESTIC UTILITIES

MOTOR WHEEL CORPORATION
Heater Division Dept. 251 LANSING, MICHIGAN

Send me at once, full information and profit-building plan on the Piatt Heater. I am not obligating myself but will study the details carefully.

Name _____
(Please print or typewrite)

Street _____

City _____ *State* _____

My Business _____

W. D. COVER
Special Sales Representative

The Men behind MONCRIEF FURNACES

IT'S almost a waste of paper and printer's ink to tell the trade about W. D. Cover, for everybody knows Bill Cover. Everybody likes him; respects him.

Some men seem to have the habit of success, of making things go. That's Bill Cover.

He started life working for the railroad company. He might have become the road's president but he didn't stay long enough. He left shortly to take over a meat market and grocery that was not paying. He made it pay.

Then he was called into the furnace business. He made it go so successfully that he was made director of the local bank.

As a furnace man, Bill Cover has travelled this country from one end to the other. Dealers everywhere know him and are glad to see him, because they have learned that he always treats them with the utmost frankness and fairness.

Five years ago Mr. Cover joined The Henry Furnace & Foundry Company. His wide acquaintanceship and thorough knowledge of the furnace business made him valuable as sales representative. At the present time, he has been enlisted to supervise production. This has been necessary because, in the past few years, the output of the company has so greatly increased.

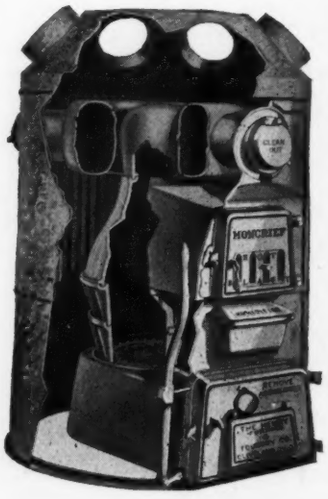
We supply everything used on a warm air heating job

The most interesting thing about Bill Cover's career is that he came back into the furnace business five years ago after he thought he had retired. He was just too young and enterprising to sit around and dream of yesterday. So, as he says, he looked around for the finest bunch of men in the furnace business to hook up with—and here he is.

* * *

Back in copy book days we learned the story of the painter who, asked what he mixed with his colors to produce such fine pictures, replied "Brains."

There is more than fine grey iron used to make Moncrief Furnaces. The most careful study has been given to perfect design and the utmost care is taken at every step in construction.



The dealer who handles the Moncrief line can be assured that he is selling the best furnace obtainable, a line that makes for a permanent, profitable business.

Send for details of the Moncrief proposition

THE SERIES "C"

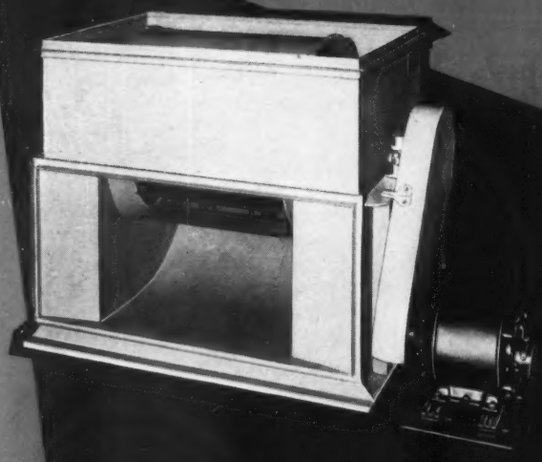
THE HENRY FURNACE & FOUNDRY CO.

3471 EAST 49th STREET **CLEVELAND, OHIO**

THE SERIES "C" CAST FURNACES

THE NEW MONCRIEF STEEL FURNACE

SILENTAIR
Originators-
CENTRIFUGAL BLOWER
TYPE FURNACE FAN
AIR WASHERS
ATTAINING
NATION WIDE
POPULARITY
UNITED STATES



SILENTAIR FAN (BLOWER)

The "SILENTAIR" fan (blower) is of the centrifugal, or squirrel cage type, operated at a very low speed by a silent "V" belt drive. It is the only type of furnace fan that will move air against pressure without noise. Three speed pulleys are provided on the motor and fan. During the summer the belt should be shifted to the high speed for maximum ventilation and cooling. All bearings are outside the fan and easily accessible for lubrication. The motor consumes a negligible amount of current. If desired the blower can be installed without the air washer and you will have all the advantages of forced air heating and cooling.

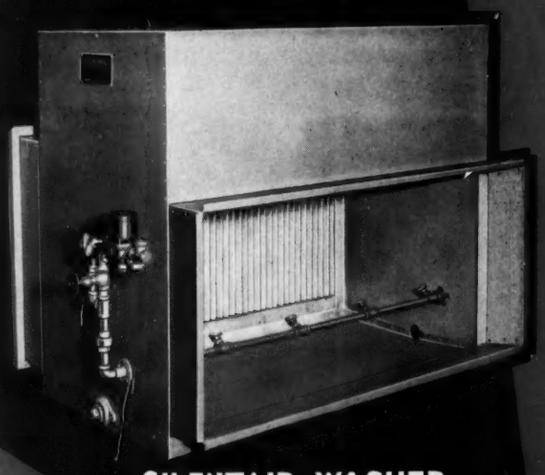
COMMENTS

"This is the fourth make of furnace fan we have tried out and I want to tell you that we consider it the neatest and most efficient, as well as the most silent of the lot." "Again we want to say a good word for the SILENTAIR equipment. Each week we hear another report from a SILENTAIR installation, and in each case we find the results are truly exceptional. The blower is quiet beyond belief. It moves air against pressure and does it with a minimum of current." "If you will check SILENTAIR prices as compared with other fans you have been using, you will find that there is very little difference. The SILENTAIR is so much easier to install than any fan that requires a large fan shoe, that this must be taken into consideration when pricing your job." "We have had many of these blowers installed thruout the country, and as yet have not heard one criticism of them."

STOCK OF SILENTAIR FANS AND AIR WASHERS CARRIED BY:

DISTRIBUTORS AND MANUFACTURERS

Anderson & Kropp, Toledo, Ohio—Dist Andes Range & Furnace Corp. Geneva N. Y.—Mfg The Beckwith Co. 447 Monadnock Block, Chicago Ill
—Mfg., Gravel Heating & Ventilating Co. Christchurch, N. Z.—Dist Heating & Ventilating Engineering Co. Marshalltown Iowa—Heating & Ventilating Co. Lennox Furnace Co. For Furnace Co. See Francisco Calif.—F Mfg. Fay Furnace Co. Elyria, Ohio
Syracuse, N. Y.—F Mfg. Lennox Furnace Co. Marshalltown, Ia.—F Mfg. Lennox Furnace Co. Ottumwa, Ia.—Dist D. E. McCulley Co. Omaha Nebr.—Dist Pittsburgh, Pa.—Dist International Heater Co., Utica, N. Y.—Mfg. Kenney Heating Co.
Nebraska, Wis.—F Mfg. Model-Rapid Heating Co. Columbus Ohio—Dist H. Mayer Foundry & Furnace Co. Bloomington, Ill.—F Mfg. L. J. Mueller Furnace Co.
Majestic Furnace Co., Seattle, Wash.—Mfg. Robinson Furnace Co. Chicago, Ill.—Mfg Lennox Furnace Co. Monteg Stove Works, Portland, Ore.—Mfg. Mont & Evans, Spokane, Wash.—Dist.
Francisco Calif.—Dist Waterman-Waterbury Co. Minneapolis Minn.—F Mfg. Wayne Home Equipment Co. Fort Wayne Ind.—Mfg Western Furnaces, Inc. Tacoma Wash. Zimmerman's Bldg Specialty Co., New Orleans, La.—Dist Tay-Holbrook Co., San



SILENTAIR WASHER

The "SILENTAIR" air washer is an ingenious device very similar to the larger washers used in public buildings. City water pressure forces a finely divided spray from the many nozzles. The size of the spray is indicated on the pressure gauge and is easily adjusted by the convenient needle valve. The water supply is controlled electrically to operate only when the blower is in motion. The air is driven through the water spray where it is cleaned, deodorized, purified, humidified and COOLED. It is then driven through eliminator plates which remove the surplus water and drain it off to the sewer. Simple, economical and absolutely silent.

SILENTAIR FURNACE FANS & AIR WASHERS

Manufactured by

A. GEHRI & CO. INC., TACOMA, WASH.

SELL ... QUALITY –

IN this time of close buying, the cheap, shoddy and gyp products run to cover. The buyer today is looking for QUALITY. He wants to be certain that his dollars get him the best for every cent invested. ***Sell quality.*** . . . You make a better profit and insure a satisfied customer. The Midland El Capitan is quality from top to base. Every feature means entire satisfaction and makes it a quality product. The front speaks of quality. Notice the beautiful lines; the outside shaker lever, the rotary grates and the many other features shows that it is a quality product throughout. Sell the El Capitan and you sell quality. Write today for full information.

1930 IS A MIDLAND YEAR

MIDLAND SALES CONTINUE TO INCREASE!

EL CAPITAN

MIDLAND MADE

MIDLAND FURNACE COMPANY, COLUMBUS, OHIO

MIDLAND STEEL RIVETED and CALKED IS BEST FURNACES

Mention AMERICAN ARTISAN in your reply—Thank you!

HESS

NEW AUTOMATIC FURNACE

WELDED STEEL—LEAK-PROOF CONSTRUCTION

NOW is the time to push furnace sales. The Hess Automatic Furnace is offered in two sizes, capacity up to 755 sq. in. of heat pipe area, to cover a large share of your furnace sales. Built in quantities, as a unit, completely equipped with:

1. ***Automatic humidifier—insures humidity.***
2. ***Automatic, electric, thermostatic control. Controls room temperature automatically—Saves fuel and gives uniform heating.***
3. ***Electric booster blower, about doubles ordinary gravity circulation and insures positive heat distribution — more efficiency and comfort.***

It gives you a complete heating unit of the latest type at a price but little higher than the ordinary furnace of the same capacity, without these modern features. Here is just the furnace your customers have been looking for. We offer an exclusive dealer proposition where we are not represented. Investigate.

The New Hess AIRWATER unit is designed to fit the average furnace in the ordinary size home. It washes the air, purifies it, and gives a cooling circulation in the summer. In winter it delivers clean and properly humidified warm air under pressure throughout the house. It will pay you to investigate the money making possibilities of this new air conditioning system for homes. Complete information on request.

HESS WARMING & VENTILATING CO.
1207 South Western Ave. Chicago, Ill.
Branches—Detroit and Milwaukee

Hess Warming & Ventilating Co.,
1207 South Western Avenue, Chicago, Illinois.

Please send me complete information on your dealer plan as checked below:

☐ Hess Automatic Furnace
☐ Hess AIRWATER Unit

Name.....
Address.....
Town.....State.....

Say you saw it in AMERICAN ARTISAN—Thank you!

These days most folks are *QUALITY SEEKERS* not merely *BARGAIN HUNTERS*

WHEN business is rushing and everybody is buying folks who demand low priced products can seldom be sold high quality even at a slightly higher price. In times like the present though, those who are buying are aware of conditions and are watching their prices. They may be looking for better prices but in reality they are seeking extra quality for their money.

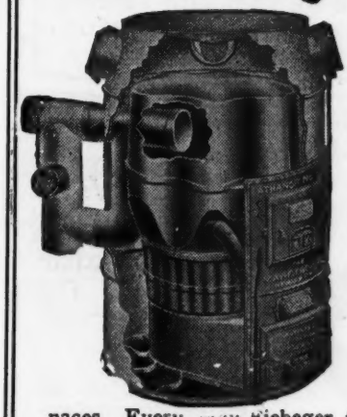
You can keep up your high quality installations and your profit making prices if you choose the right furnace. You can easily convince your prospects that the Ath-A-Nor is worth more than its price because of its readily recognized superior features.

Remember---

THE PIPE AND ATH-A-NOR PIPELESS FURNACE

IS

SMOKELESS



and the reason why it burns even the cheapest fuels *completely* is because of its famous exclusive Three-Way Air Blast feature.

This feature alone will clinch sales but there are many more—let us give you full details *now.*

Besides the Ath-A-Nor, the May-Fiebeger line includes several styles and a complete range of sizes in both cast iron and steel furnaces. Every May-Fiebeger furnace is high grade and reasonably priced.

The May-Fiebeger Company
NEWARK, OHIO

Sell correct *AIR CONDITIONING*

with the

FARRIS WATERBASE FURNACE

Provides 35 to 55% relative humidity

With this furnace your fan will not stir up dust

THE demand for cleaned, humidified and forced warm air is growing by leaps and bounds.

For all such jobs or any job the Farris Waterbase Furnace is far ahead. The Waterbase feature is simple, practical and space saving. Your blower will not stir up dust—you will provide constant, automatic humidity plus a high quality furnace in all respects.

The waterbase is equipped with automatic flow regulation, draining and flushing features.

Learn more about this exclusive Farris construction.

The Farris is a high quality, scientifically constructed furnace throughout—let us tell you all about it—send the coupon today.

FARRIS FURNACE COMPANY
Established 1899
SPRINGFIELD ~ ~ ILLINOIS

FARRIS FURNACE CO., SPRINGFIELD, ILL.
Send me full details and dealers' proposition on the Faris Waterbase.

Name.....

Address.....

City..... State.....A.A.

all your purchases from one source

WISE FURNACES

BELOW is shown the New Wise Steel Furnace. A Wise product and a steel furnace having exclusive Wise features. Notice the Cast Iron Soot Box and Clean-Out on bottom of Radiator—the weak spot of steel furnaces eliminated.

THE Wise Open Dome 40 Series with Self Cleaning Radiator is even better than ever with its new One-Piece heavy Cellular Firepot and new Elbow Shaped Collar on inside of radiator which is turned up so that all the heat must follow the castings to the top before entering the flue.

THE Wise 20 Series Return Flue Radiator has a new Patented radiator. Now cleaning the radiator is easy. The feed chamber and the radiator are designed so that the fire flues are easily gotten at from the upper feed door with the soot falling directly into the firepot. Also equipped with the new Cellular Firepot.

Write for catalog No. 23

The WISE FURNACE COMPANY, *Akron, Ohio*

GILTEDGE
guaranteed
FURNACES

FOR fifty-five years the name GiltEdge has meant high quality furnaces. Today more than ever before GiltEdge Furnaces lead as to quality and workmanship.

The GiltEdge agency will add extra prestige and profits to your business.

Write today for full details regarding the GiltEdge 1930 sales plan.

SCHWAB FURNACE & MFG. CO.
283 Clinton Street Milwaukee, Wis.

For installations of superior heating service—choose

Vernois

FURNACES

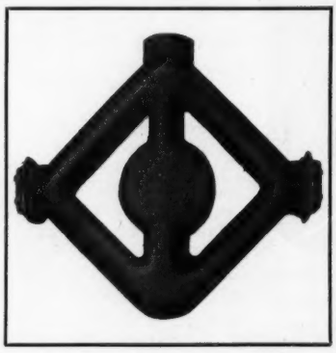
Write for complete catalog
MT. VERNON FURNACE & MFG. CO.
Mt. Vernon, Ill.

LENNOX
TORRID ZONE
STEEL FURNACES

An Emblem of Quality

The dealer who has never sold Torrid Zone steel furnaces has no conception of the many advantages this furnace line offers. To say you are familiar with Torrid Zone construction is not enough. There are, free engineering service, newspaper and dealer help advertising, financial aid, an unusual variety of furnace sizes, quick deliveries made possible by large warehouse stocks, and a score of other Torrid Zone service features of vital interest to every furnace dealer. Why not investigate for yourself Torrid Zone possibilities. Write for complete information on the Torrid Zone line.

LENNOX FURNACE COMPANY, INC.
Marshalltown, Iowa Syracuse, N. Y. Toronto Winnipeg



ROUND OAK
Diamond Shaped
Top Radiator

It's different—most efficient

This is just one of the better construction features that makes for Round Oak furnace leadership.

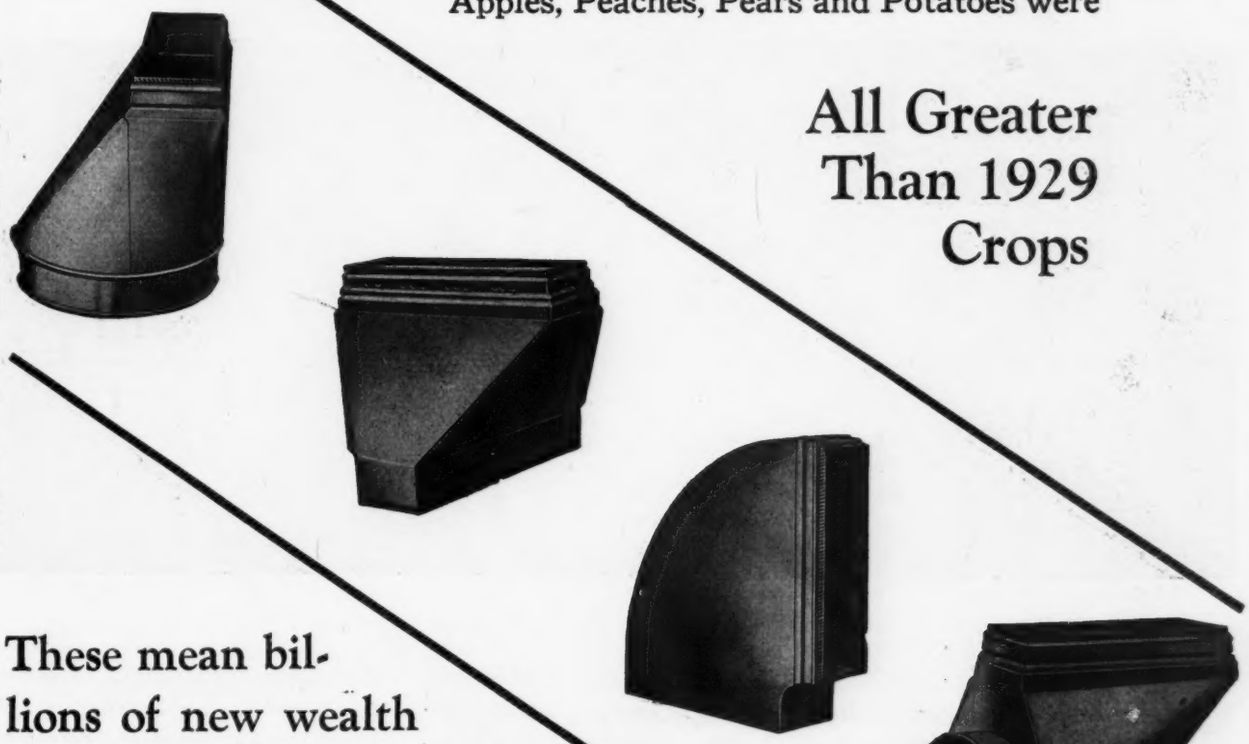
THE BECKWITH CO., Dowagiac, Mich.

Say you saw it in AMERICAN ARTISAN—Thank you!

Business IS Definitely Pointed Upward for Fall

Some sections of the country have already begun to feel a more optimistic tone. The crop outlook as of August first, for Corn, Wheat, Oats, Barley, Rye, Flaxseed, Apples, Peaches, Pears and Potatoes were

All Greater Than 1929 Crops

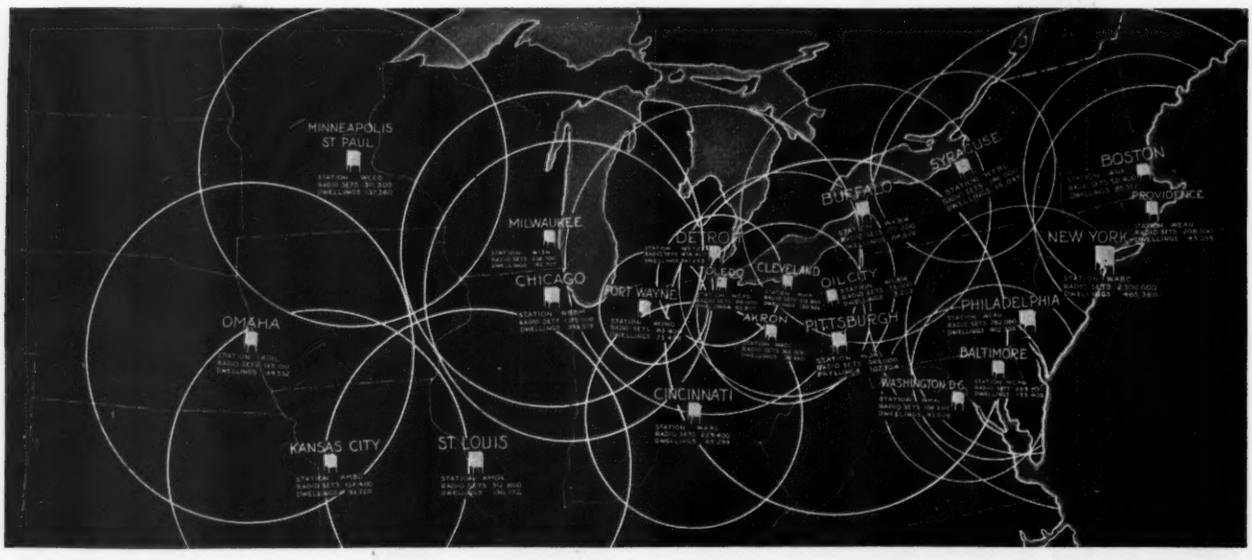


These mean billions of new wealth regardless of the stock market---and in territories where there will be a demand for new home-heating jobs on which you can use HANDY PIPE.

F. Meyer & Bro. Co., Peoria, Ill.

MINNEAPOLIS-HONEYWELL takes to the air

New radio advertising campaign booms automatic heat in series of 13 sensational broadcasts



Beginning Monday evening, September 8th, at 9 to 9:30 Eastern Daylight Saving Time, the Minneapolis Symphony Orchestra, Henri Verbrugghen conductor, will be broadcast weekly for 13 weeks over a 22-station hook-up of the Columbia Broadcasting System.

The definite importance of this news cannot be over-estimated.

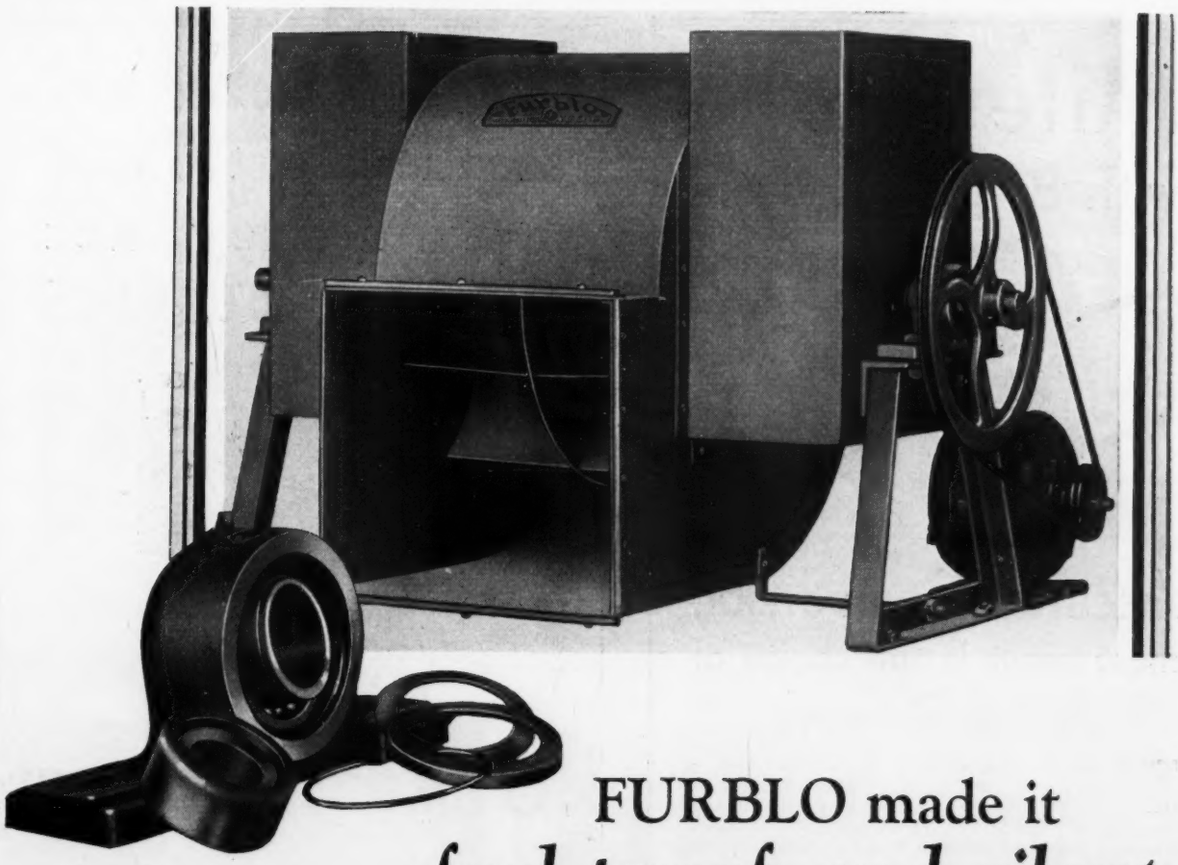
For Minneapolis-Honeywell continues to forge ahead to promote the heating industry, automatic heat and automatic heat control to the American people and the American home.

As in its other advertising and sales activities, Minneapolis-Honeywell has obtained the best. The Minneapolis Symphony Orchestra is among the country's most famous symphony organizations; its conductor, Henri Verbrugghen, is well-known here and abroad. Each concert will be a veritable gem, carried through with good taste and simplicity. The subject of each broadcast will be definitely connected with the Minneapolis-Honeywell national advertising, each theme being an intriguing and interesting question regarding automatic temperature control.

Now additional millions of home owners throughout the country will learn the convenience, comfort, health and economy of automatic heat. Now new millions of prospects will turn to the trade for advice and service. Minneapolis-Honeywell, as always, continues to lead the way to greater profits for you.

* * *

These programs will be broadcast over stations WADC, WCAO, WNAC, WKBW, WBBM, WKRC, WHK, WXYZ, WOWO, KMBC, WISN, WCCO, WABC, WLBW, KOIL, WCAU, WJAS, WEAN, KMOX, WFBL, WSPD, WMAL, of the Columbia Broadcasting System.



FURBLO made it *fool-proof and silent* with the aid of FAFNIRS

Mounting a Fafnir Wide Inner Ring Ball Bearing is simplicity itself. Difficulties of plain bearing assembly are entirely avoided.

Slip it over the shaft . . .

Turn the collar . . .

Set the screw . . . and the bearing is secured to the shaft!

NOISE resonates in the sheathing of a warm air furnace. That is why the blower must be exceptionally quiet as it is in the Furblo design.

Plain bearings, while quiet when new, require a great deal of attention—but seldom get it. As wear sets in they become noisy. Furblo eliminated this source of trouble by using Fafnir Ball Bearings.

The rotor shaft of the Furblo blower is mounted on two single self-aligning Fafnir Pillow Blocks. Assembly is greatly facilitated, while friction and wear is practically banished. The silence of a new installation is enjoyed year after year with a minimum of attention — merely greasing once or twice a year.

For lasting silence and fool-proof construction in a blower insist that the rotor be carried on Farnir Ball Bearings.

THE FAFNIR BEARING COMPANY, NEW BRITAIN, CONN.

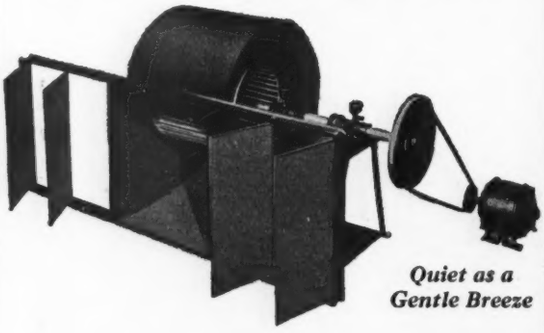
Chicago Milwaukee Detroit Newark Cleveland Philadelphia New York

FAFNIR MOST COMPLETE LINE OF PRECISION BALL BEARINGS IN U.S.A.

FAFNIR BALL BEARINGS

Miles Fans

with By-pass Louvers



Quiet as a Gentle Breeze

Accurate Comparison must result in the choice of Miles Blowers

THE one dependable way to measure blower ability is to KNOW what it will deliver against RESISTANCE. When you buy a MILES Blower you KNOW what it will deliver against resistance because we give you the figures and they are dependable. Miles Blowers are sold under a guarantee of figured air delivery against resistance.

Correctly engineered, in the case of MILES Blowers, means the right type of Blower, that is, the right type of wheel construction for air delivery against resistance. It means simplicity, durability, speed adjustability to suit the job—flexibility without extra cost. MILES Blowers come with the Miles patented By-Pass Louvers, on either side of the fan orifice, providing FREE AREA for gravity flow when the fan is not running. Safety and satisfactory service from any "on-and-off" system demand by-pass louvers.

When you get a "Miles" you know it is a well built job designed by the company which pioneered the furnace fan business.

IMPORTANT TO NOTE

Miles Blowers are sold with or without motors; standard motors may be secured anywhere. Miles Blowers are not quoted at retail list prices.

The Miles Line includes Miles Blowers, Miles Automatic Furnace Fans in the widest range of sizes and services from the Booster type selling at $20 up to fans retailing at $350.

For customer satisfaction install MILES fans. Write for prices and recent data.

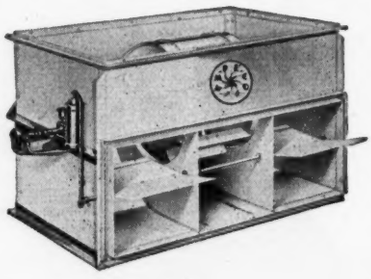
The Warm Air Furnace Fan Co.
6511 Cedar Ave., Cleveland, Ohio.

The Reed Furnace Filter

distributed by us, delivers CLEAN FILTERED HEAT

Demand growing as value of AIR CONDITIONING becomes more appreciated. Write for circular.

The better class jobs are the easiest to land —and they net BIGGER PROFITS



AM-PE'-CO

ROTARY BLOWER

provides true forced air warm air heating

DEALERS who are directing their sales effort to the builders and owners of the better class homes are securing the kind of warm air heating business that pays.

With the Am-Pe'-Co Rotary Blower you can approach any warm air heating problem and assure your customers of genuine forced air heating. The Am-Pe'-Co is ***positive*** in operation—it is absolutely automatic. The ***Dampers*** open automatically simultaneously with the stopping of the blower. The Am-Pe'-Co Rotary Blower is operated by an oil pump and regulator of our own design.

Operated in Summer it will positively cool the home—

The Am-Pe'-Co will make good your promise of summer cooling—this blower forces cool basement air into the living rooms.

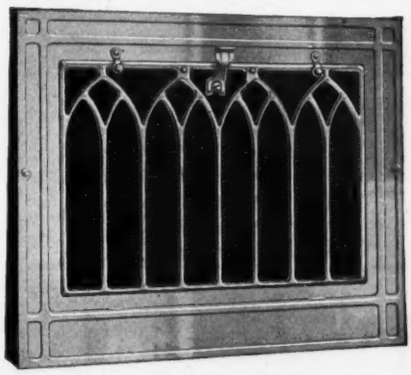
The patented Am-Pe'-Co design makes it the only blower that has a fully balanced distribution of air to both inlets.

Learn more about the Am-Pe'-Co Rotary Blower—check its construction and efficiency and let us give you prices that mean quick sales and good profits ***right now.***

American Machine Products Company
Marshalltown, Iowa

Say you saw it in AMERICAN ARTISAN—Thank you!

USE THIS ADVANTAGE



No. 110 Series, two-piece register. Size 8 x 12, has full capacity for 10" pipe. Sidewall register and baseboard cold air intake to match.

IT COSTS YOU NOTHING!

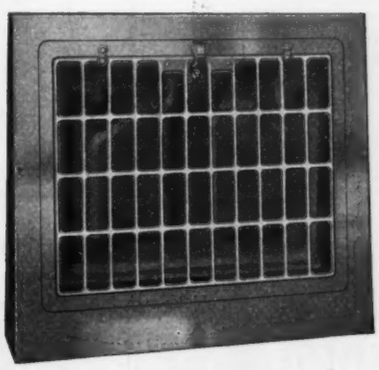
H&C

In a buyer's market as you, too, have no doubt found, prospects are more critical. They search deeper, compare more keenly. And consequently right now you need every possible selling advantage more than ever before. Then why not put that extra quality that you find in H & C Registers to work for yourself?

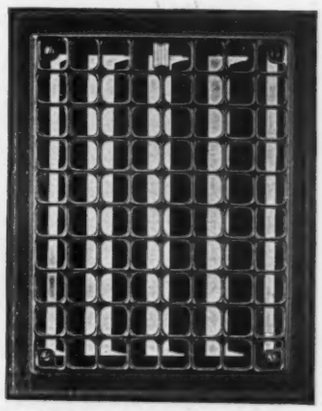
All the way down the line there are superiorities that are real helpful selling points. Unusually attractive designs, greater air capacity, finished workmanship, superior packaging — all of which really cost you nothing, for H & C Registers cost no more than others.

Standardize on the H & C line. Talk its obvious superiorities; and you'll find, as hundreds of other installers have, that it helps a lot in making furnace sales.

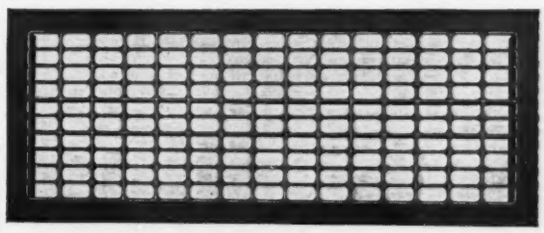
See them at your jobber — or write direct to us for catalog and prices.



No. 150 Series, two-piece register, long a popular model. Also made in one-piece type, No. 160.



No. 200 Floor Register. Made of unbreakable steel. Has larger free face area than any other floor register of equal dimensions.



No. 225. The original special steel cold air face and still the best. Furnished in medium shade of oak best suited to all oak floors. Also carried in stock in black japanned and oxidized copper finishes.

HART & COOLEY REGISTERS

Made by HART & COOLEY Mfg. Co.

CHICAGO—61 W. Kinzie St. **NEW BRITAIN, CONN.—Corbin Ave.**

Philadelphia, 1600 Arch Street—New York, 101 Park Avenue—Boston, 75 Portland Street—Nashua, New Hampshire

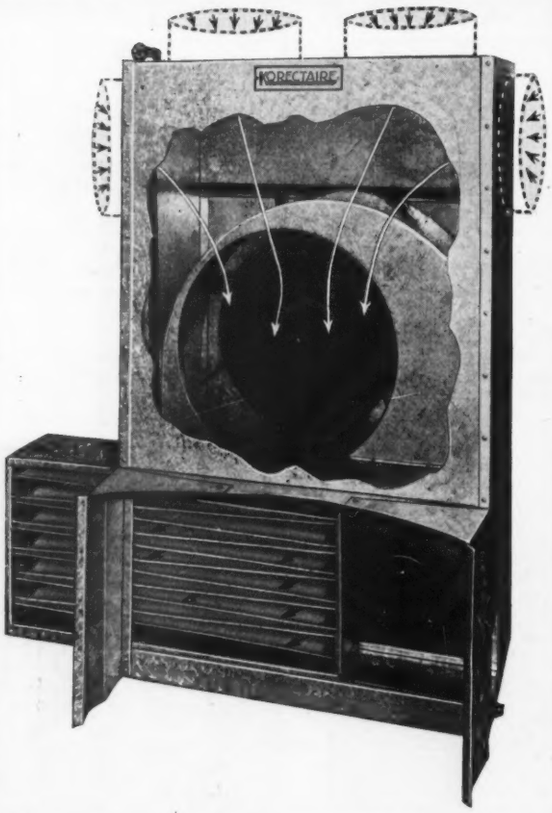
Factories at Holland, Mich.—New Britain, Conn.—Nashua, N. H.

ALSO A COMPLETE LINE OF FURNACE REGULATORS, CHAIN, PULLEYS, DAMPERS, ETC.

Mention AMERICAN ARTISAN in your reply—Thank you!

The NEW KORECTAIRE

The CORRECT AIR MACHINE



For true air-conditioning with the warm air heating system—

1. A POSITIVE PRESSURE BLOWER
2. AMPLE AND AUTOMATIC HUMIDIFICATION
3. NON-RESISTING AIR FILTER

HERE is the Air-Conditioning Unit that makes folks take notice. It SELLS. Nothing else like it — nothing so simple and practical.

It ***forces*** the air ***efficiently*** and ***quietly***—

It ***cleans*** the air ***thoroughly*** and ***without interfering*** with air flow—It humidifies the air ***adequately*** and ***properly***—

Write today for full mechanical details

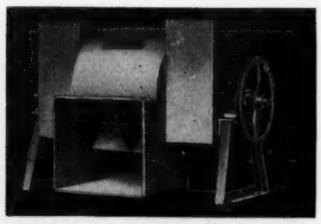
CLINCH YOUR TERRITORY NOW

WATT MFG. COMPANY
STERLING, ILL.

Furblo *The Furnace Blower Everyone Recommends*

MANUFACTURERS have adopted FURBLO as standard equipment — jobbers catalog FURBLO exclusively —dealers everywhere find FURBLO the one and only satisfactory solution to the problem of mechanical warm air heating.

FURBLO is not a fan—but a blower. Quiet, efficient, powerful, sturdy, dependable. Guaranteed to always produce on even the hardest job.



Lakeside Company
Dept. AAA-8, Hermansville, Mich.

Two sizes fit practically all installations. Send for complete information.

Makers of Lakeside Ventilating Equipment

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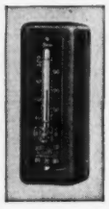
only **$48** *installed*

dealer price $22.75



"Sheer Comfort" Heat Regulator is all electric—yet it costs less and gives four exclusive safety features found in no other heat regulator at any price. No batteries, nothing to wind or oil. Easy to install. Ask your jobber or write, H. M. Sheer Co., 213 Hampshire St., Quincy, Ill.

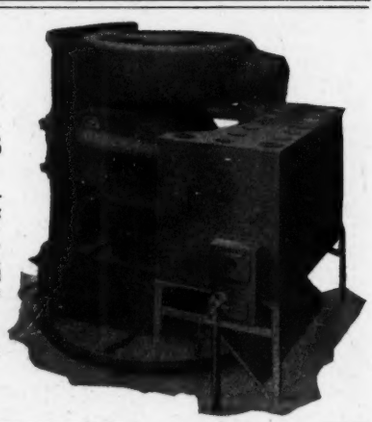
SHEER COMFORT *heat Regulator*

You can sell
GAS HEATING
to OLD as well as new customers with
The MUNKEL GAS ATTACHMENT

It fits any coal furnace—it heats both units giving extra large radiating surface. Simple, efficient, economical and easy to install. Stimulate business and make more profits with the Munkel Gas Attachment.

Write today for full details

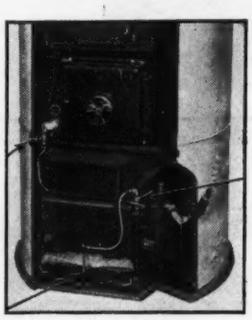
The **MUNKEL-RIPPEL HEATING CO.**
"31 Years of Service"
Columbus, Ohio



FURNACE MANUFACTURERS AND JOBBERS—

Give your trade this extra feature

FURNACE DUST ELIMINATOR



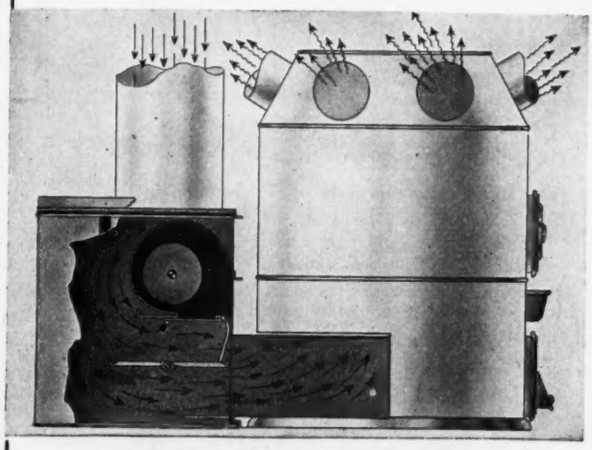
A NEW patented appliance that makes ash removing a clean job. Nozzle emits a fine spray of moisture which settles dust. Control valve conveniently located. Sleeve connection allows nozzle to swing out of the way with door. First quality materials throughout. Practical, efficient, and inexpensive.

Write for full information and prices today.

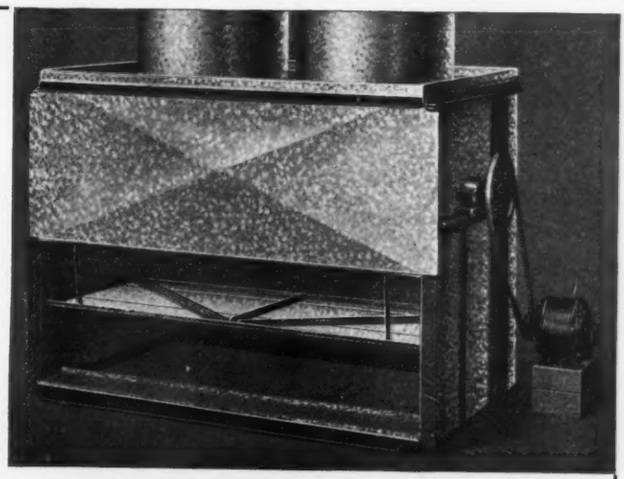
DUSTLESS ASH COMPANY, MUSKEGON, MICH.

Brundage
FORCED AIR
System

For increasing the efficiency of any make of Warm Air Heating Equipment



Side view, cut open to show position of dampers when fans are idle. Note free movement of air by gravity through Brundage Unit.



Front view (outlet side) showing open position of damper when fans are idle.

This new forced-air system is compact, silent, and economical. It has proved a real success with heating contractors everywhere. Write for further information and interesting dealer proposition.

The Brundage Company
Kalamazoo, Michigan

Three Golden Months For You

Our one-man outfit makes low overhead

OWNERS of speedy Super Suction furnace cleaners will make a big clean-up before snow flies again. Cleaning—repairing old furnaces—selling new ones; money coming in three ways.

Every furnace user is ready now to talk to the man who can save him money on next winter's fuel bill. Dull times make home owners receptive to such economies. Your selling is easy.

You can try a Super Suction for three days FREE. Write at once for details

THE NATIONAL SUPER SERVICE CO.
1944 North 13th Street **Toledo, Ohio**

BRILLION
FURNACE CLEANER

You can make more than its cost before fall—*out of cleaning profits alone.*

LIGHT WEIGHT *but* STURDY It has POWER and QUALITY

GET busy now with the Brillion cleaner—pick up many extra dollars in repair business and locate unexpected furnace prospects.

Once in the prospect's basement you have the ***best*** opportunity to sell Heat Regulators, Automatic Humidifiers, Blowers, Fans, Filters, etc.

You ***must go after business*** and the Brillion Cleaner is your best bet.

One man operates the Brillion—it is easy to handle and use.

It is high grade in all respects and thoroughly efficient. Send the coupon today.

BRILLION FURNACE CO. a.a.
Brillion, Wis.

I am interested in going after warm air heating business by using furnace cleaning as my entry. Tell me all about the Brillion Furnace Cleaner.

Name.....

Address.....

City..... State.....

FURNACE CEMENT

—a small item with great responsibilities

USE

LASTIK

WAMPUM BRAND

A superior product made by men who know what it must accomplish

FURNACE CEMENT

MOST furnace cements look the same but do any two stand up exactly the same in actual use? Lastik Wampum Brand Furnace Cement is manufactured to meet every technical and practical requirement of installer and manufacturer.

It is the result of two years painstaking research and field investigation by Lastik engineers.

You'll find it the smoothest, softest and most pliable furnace cement you've ever used. Shortly afterwards you learn that under heat it hardens (WITHOUT CRACKING OR SHRINKING) so that it practically becomes part of the casting. Wampum Brand Lastik Furnace Cement is Odorless, Firmly Knit, Non-Porous and Acidproof.

Order a can now from your Jobber for that next job—try the furnace cement that other furnace men term the best.

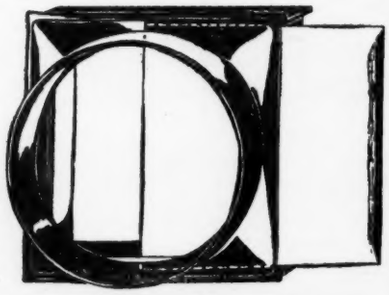
LASTIK PRODUCTS CORPORATION

***General Offices*, Oliver Bldg., PITTSBURGH, PA.**

Also Manufacturers of LASTIK ROOF PAINTS AND CEMENTS—LASTIKALK—LASTIK DAMP-PROOFINGS

Make an *extra profit* on every New and Old smoke pipe installation

"NO-DAMP"



It's a

1 Draft Control
2 Thimble
3 Protection Against Moisture
4 Pipe Saver

It sells on sight—It's easy to install

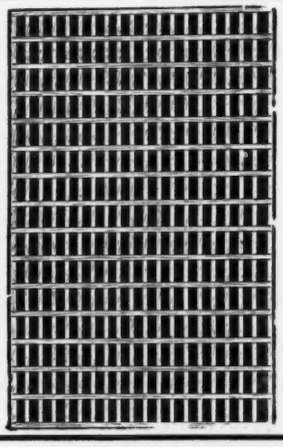
THE four-in-one purpose of the "No Damp" makes sales easy. "No-Damp" is made of cast iron. Every smoke pipe needs one no matter what kind of heat is used.

The slide acts as a damper—it keeps excessive moisture or water from reaching the smoke pipe or furnace in spring and summer. It eliminates necessity of taking down smoke pipe in spring—it makes a neat and substantial thimble if pipe is taken down.

Be the one in your territory to sell "No-Damp"—write today for circulars and prices.

EISSLER HARDWARE

129-131 FIFTH STREET AURORA, ILL.



AMERICAN *WOOD* REGISTERS

WHEN you order wood registers be sure of getting the best by buying these famous wood faces—

Known as the finest for over 21 years

They add extra value without extra cost. We make nothing but Wood Registers and only the best.

Write today for catalog and latest price list.

The AMERICAN WOOD REGISTER CO.

Plymouth Indiana

No. 60

FURNACE DOOR HANDLE

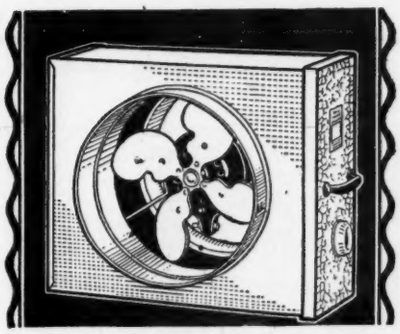
Furnished with or without attachment

THIS is only one of the numerous style handles we make—if this is not the handle you wish please write us and we will send samples of other designs.

THE FANNER MFG. COMPANY

BROOKSIDE PARK Dept. F CLEVELAND

Say you saw it in AMERICAN ARTISAN—Thank you!



Modernize present systems—make every new installation a forced air job—at low cost but with good profits with the—

FOLKS are getting forced air conscious. They are beginning to learn that homes as well as schools, theatres and churches can enjoy forced air heating and cooling. For the home the A-C is the Unit that accomplishes the desired results. Besides being thoroughly practical and automatic it is easily installed and costs very little. Show the quiet, trouble free and powerful A-C air booster to your prospects and your profits with grow.

A-C *Thermostatically Controlled* *Automatic* **HEAT BOOSTER**

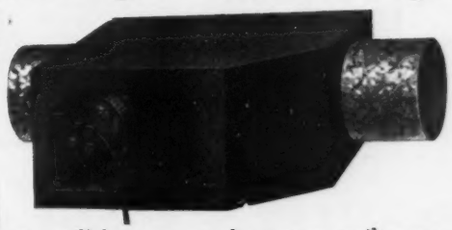
No. 9 size unit with 10-inch Outlets. Mercury Control, Heat Booster, Fan and Unit—complete to the dealer..... **$36.00**

Order through your jobber—made in several sizes—ask for full details

A-C Manufacturing Company, 417 Sherman St., Pontiac, Ill.

A Heat Hustler Fan Forces Air Through a Single Warm Air Pipe

Heats garages, sun porches and other rooms that will not heat by gravity. Mounts directly in the warm air pipe. Draws heat from the furnace and forces it into the hard-to-heat room. Quick heat for a bathroom.



Four reasons why you should use the American Heat Hustler:

1. It uses a positive pressure, rotary type fan.
2. Motor is outside the warm air flow, adding greatly to life of motor and leaving as much space for gravity air flow as before the Heat Hustler was installed.
3. It is quiet.
4. Furnished for either automatic or manual control.

Price list, with descriptive literature showing different models, sizes, etc., will be sent you by return mail upon receipt of your request. CLIP AND SEND THIS AD IN NOW!

AMERICAN FOUNDRY & FURNACE COMPANY

Bloomington, *World's largest manufacturers of blower furnace systems* **Illinois**

Designed especially to provide efficient OIL HEATING with warm air furnaces

Features of the

BOCK OIL BURNER

1. Dependable and quiet.
2. Simple—only one moving part.
3. Specially built full floating motor — no hum.
4. High and low flame operation. No ignition or gas pilot.
5. Even and efficient distribution of heat to all castings.
6. Automatic control—Ease of operation.

Send the coupon today

***The* BOCK OIL BURNER CORPORATION**
MADISON, WISCONSIN

The BOCK OIL BURNER

THIS type Y Bock Burner is exclusively a warm air furnace oil burner. It provides the steady full flame essential for oil burner efficiency in a warm air furnace.

Also it is extremely quiet—another warm air furnace necessity.

Low Cost—Big Profit Maker

The BOCK sells at a price that creates sales—It nets you a good profit.

With the Bock Oil Burner you have a big almost untouched market — Oil heat is steadily growing in popularity.

As a practical man (you have seen many oil burners) you will approve of the simple, practical and efficient mechanical design and operation of the Bock.

AA

BOCK OIL BURNER CORPORATION
Madison, Wis.

Gentlemen:

I am interested in selling an Oil Burner especially designed for use in the warm air furnace. Send me full details of the Bock Type Y.

Name.....
Address.....
Town..... *State*.....

Founded 1880

American Artisan

THE WARM AIR HEATING AND SHEET METAL JOURNAL

Published Every Other Saturday

Covering All Activities
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Gravity Warm Air Heating
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Sheet Metal Contracting
Air Conditioning
Industrial Roofing
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VOL 99, NO. 18

August 30

1930

You fellows who do built-up roofing will be interested in the story of one of the most expensive roofs of this type yet laid. The story will appear in the September 13 issue.

* * *

One of the easiest ways to overcome prejudice against metal work is to paint it. Look at the way the steel furniture and steel automobile bodies picked up when paint and enamel and lacquer were used over the steel. The same is true on architectural metal work. The white painted copper tower told about in this issue illustrates this point.

* * *

This issue contains the third and last. (for the time being) article on air conditioning by Margaret Ingels. Its really quite a job for a woman to be a heating engineer. But it shows one thing—that the broadest minds in this warm air heating industry are not overlooking a single item in the great movement to sell the American public warm air.

Contents

Page

The "Tin Shop" Era Passes 25
An editorial.

A White Painted Copper Tower 26
A colonial tower of intricate and faithful design formed in copper and painted white.

A Revamped Brewery Warm Air Plant 30
An old furnace is revamped with an oil burner, a fan, and flat ducts. The plant was then rented.

Network of Gas and Oil Lines 32
A map which shows where the natural gas and fuel oil lines now extend. You can spot your location with reference to these lines.

Fan Fundamentals 34
The fifth article by G. A. Voorhees on the fundamental principles governing fan and blower operation.

Relative Humidity 37
We made an error in the last article on Relative Humidity. Here is a correction and also a very valuable table showing percentages of relative humidity by degrees.

Overhead Expense 38
An article on Overhead taken from the charts and system of the new N. S. M. C. A. cost accounting system.

Air Conditioning 40
The third article by Margaret Ingels of Carrier-Lyle. This article deals with home-made weather. You can use this information.

Three Piece Elliptical Elbow 41
A pattern worked out by our contributing editor, W. R. Haines.

A Furnace Problem 42
If you know all about drafts, you ought to be able to solve this problem. Send us your solution and help this fellow reader out of a tough problem.

Gravity Exhaust Ventilation 43
Paul R. Jordon gives us some thoughts on rationalism in ventilation work.

The Williams Oil-O-Matic Convention 44
A report on this convention in which the warm air heating industry took part.

Random Notes and Sketches 46

Notes and Queries 47

Association Activities 48

News Items and News Items 50

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New York Office: 295 Madison Avenue, Room 1109, *Tel Ashland 5342*—Frank G. Cambria, *Eastern Representative*

Now Then for That New Furnace!

What the New Premier 10-Year Guarantee (Including Grates) Will Mean to These Young People Who Have Just Received a Raise in Salary

THESE two young people are happy because his boss has given him a raise. For a long time they have wanted and needed a new furnace. Now they can buy it!

They don't know it now, but a Premier is the furnace they will buy eventually. Why? Because they are thrifty souls and the New Premier 10-Year Guarantee is going to seem about the biggest thing in the world to them. They make every dollar do double duty—only the New Premier Guarantee can satisfy their Scotch desire for long-life and freedom from repair bills.

In this age of furnace guarantees that hem and haw and are full of holes as a Swiss cheese, Premier of Dowagiac has washed its hands of the mess and has put into effect a guarantee that at last ends the argument about which furnace has the best guarantee. It's a four-square 10-Year guarantee that includes the grates and means something!

Premier of Dowagiac can include the grates in this 10-year guarantee for the simple reason that Premier grates don't burn out. How many sets of Premier grates do you suppose have ever burned out? You'll be surprised! The figure is almost unbelievably low!

Talk about your sales features, how is the grate guarantee for one? How about the furnace you handle? What can you say if a prospect asks: "Are the grates of your furnace guaranteed and for how long?"

There is no red-tape or applesauce about the New Premier 10-Year Guarantee. The Guarantee blank is sent right along with the furnace. You fill it out on the job, hand it to your customer and that's all there is to it. No stub, no need to file information with us—quick, simple and convenient. EVERY PREMIER CUSTOMER GETS A GUARANTEE REGARDLESS WHERE OR BY WHOM THE FURNACE IS INSTALLED.

The New Premier 10-Year Guarantee is made possible only by the fact that the New 1930 Model Premier is one of the most durable furnaces the world has ever known. Tested under identically similar conditions, it stood up two and three times as long as anything comparable with it.

And so giant durability backed up by positive 10-Year Guarantee has been added to the exclusive features of economy and convenience which raise Premier above all the rest. Again Premier Dealers are given a bigger club than ever before to meet competition and make more sales.

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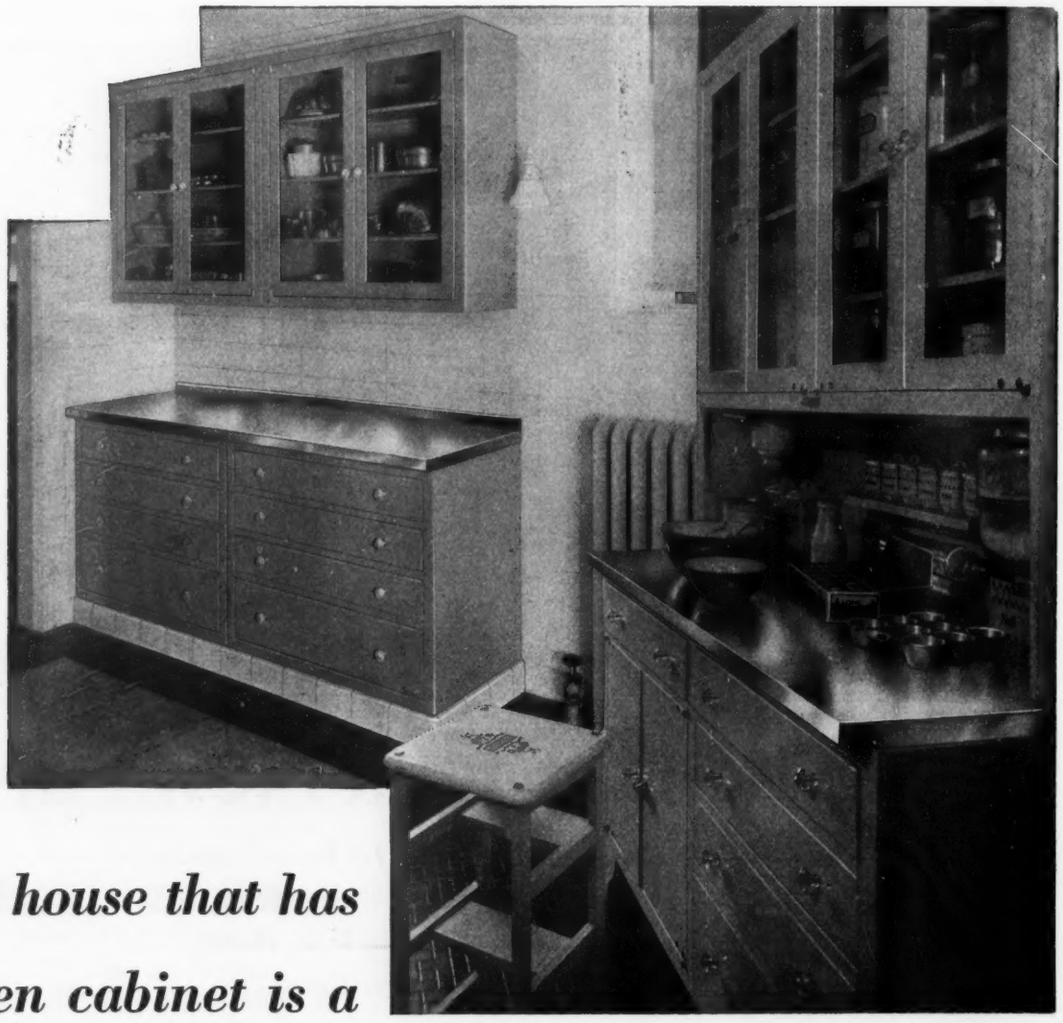

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THE WARM AIR HEATING AND SHEET METAL JOURNAL

Vol. 99 CHICAGO, AUGUST 30, 1930 No. 18

The "Tin Shop" Era Passes

BEFORE the picture gets too dim, let's give a thought and perhaps shed a tear for the passing of the "tin shop." In father's and grandfather's day the tin shop was one of the centers of every community. To the tin shop the housewives brought their leaking pots, pans and kettles. If the gutters rusted through or the downspouts leaked, the tin shop fixed it up. If a special container or accessory was needed in the home or the store or the office, and couldn't be found in the hardware store or the mail order catalogue, the tin shop man made it up. He was, in short, the handy man in metal.

But in these days of rush and bustle, the tin shop has dropped out of the picture. It is doubtful if the present generation even knows what a tin shop does. Even the housewife gives the tin shop the go-by for the women folks don't get their pots and pans soldered —they get a new one in a different color.

The home, the store, and the office no longer find any need for having special things made up in tin—they can find something better already on the market.

All this, of course, is speaking generally. There may be, and probably are, communities where the tin shop still exists.

But by and large the country has graduated out of the tin shop era just as surely as it has left the era of the livery stable.

Workers in sheet metals are no longer "tinkerers." Like their heating brethren, they have had to become specialists. As a matter of fact, most of them have had to drop the name "tin shop" in order to keep pace with the times.

For every shop making its living from gutter and downspout and utensil repair, there are a hundred shops doing metal roofing, ventilating, metal specialties work, blow pipe, heating, and a score of other specialized and technical kinds of work. In the place of the man who used to be a wiz at putting up a row of guttering we now have the contractor who can take a hundred men, hundreds of dollars' worth of equipment, move into a temporary shop at a floor level high above the street and put on thousands of dollars worth of the most intricately designed sheet metal.

In the place of the man who could fix a leak so that no amount of rough handling or heat would spring it, we have the contractor who goes into a factory and designs and builds a complicated and highly technical system for removing all dust, dirt, or gases.

And everywhere there are shops who have fat contracts to make up metal specialties for some particular business or some line of manufacturing. Many of these run this work through the shop in off seasons or idle time.

It would seem, and the leaders in the sheet metal industry seem to feel the same way, that even the great advancements made to date are really only a beginning for greater things to come. We read about an all metal building to be built shortly, of some great development in construction in which metal plays a large part. We can see everywhere great structures in which sheet metal is depended upon for adornment and protection. Even in the house field metal products are being presented to home owners for consideration.

There can be no denying that all this talk about air conditioned to taste regardless of outside conditions is going to develop tremendous demands for the sheet metal ducts so necessary for these systems. And surely all this discussion about safety and the long life, free of maintenance cost, which sheet metal brings to buildings of all types is going to bear fruit with owners, architects and the public generally.

What will actually result from all this unrest in the field of sheet metal is still problematical. Even the most far sighted of us can only hazard guesses.

But there is one thing certain—the sheet metal industry is on its way to greater things. The men in it are not going to regret the passing of the "tin shop" and the coming of the full fledged sheet metal contracting business.

Architectural Adornment of White Painted Copper on Newark Academy, Newark, N. J.

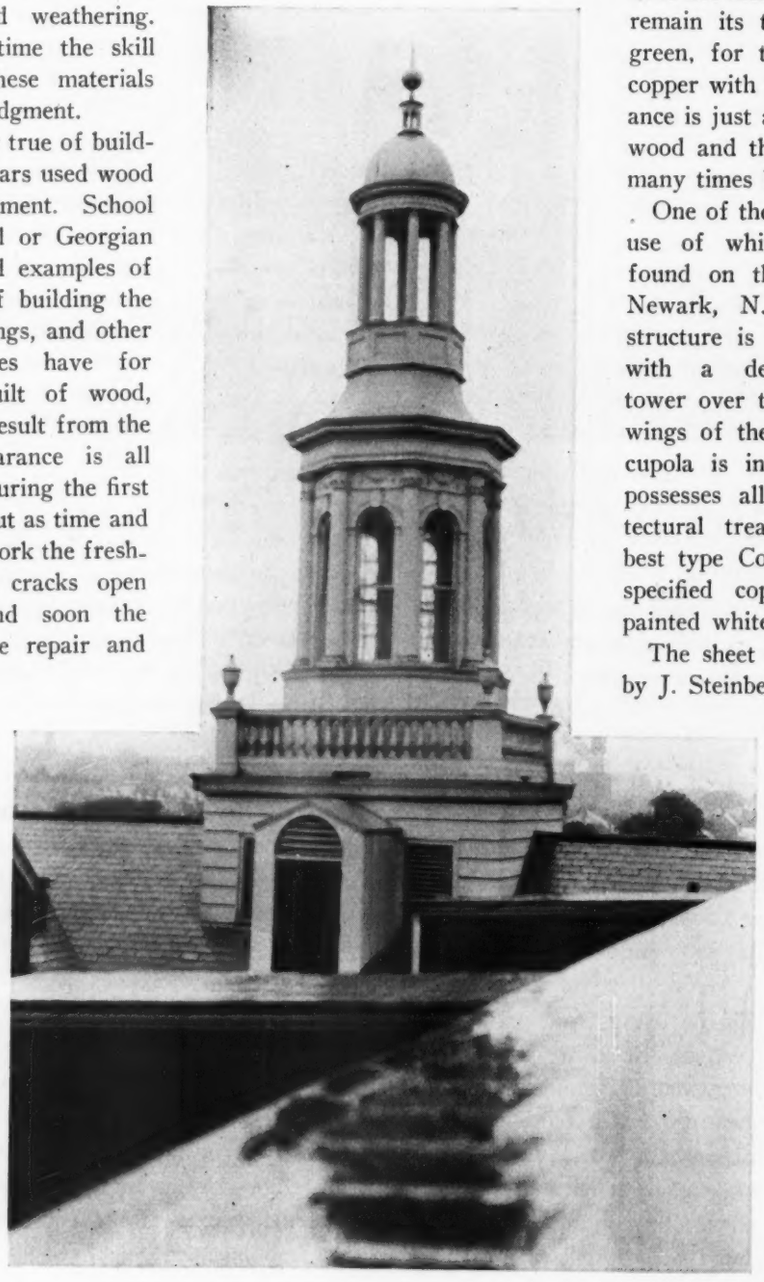
FEW buildings get as little maintenance attention as schools, municipal structures, etc. The result is that all materials used in these buildings get a severe test of ability to withstand weathering. And at the same time the skill used in applying these materials also comes in for judgment.

This is particularly true of buildings which in past years used wood for trim and adornment. School buildings of Colonial or Georgian architecture are good examples of this. In this type of building the towers, cupolas, railings, and other characteristic features have for generations been built of wood, painted white. The result from the standpoint of appearance is all that can be desired during the first few months of life, but as time and weather get in their work the freshness disappears and cracks open and paint peels and soon the wooden parts require repair and redecorating.

If this maintenance is given the wood starts over again. But if this maintenance is denied a progressive deterioration sets in which later maintenance does not entirely overcome. Many architects overcome this fault by specifying metal for such parts of the structure. This does not mean that the copper must remain its true color or even be green, for today we are painting copper with the result that appearance is just as attractive as painted wood and the lasting qualities are many times better.

One of the best examples of this use of white painted copper is found on the Newark Academy, Newark, N. J. This handsome structure is of red brick exterior with a delicately proportioned tower over the intersection of the wings of the main building. This cupola is intricate in design and possesses all the elaborate architectural treatment found in the best type Colonial. The architects specified copper for this tower, painted white.

The sheet metal work was done by J. Steinberg and Sons of New-

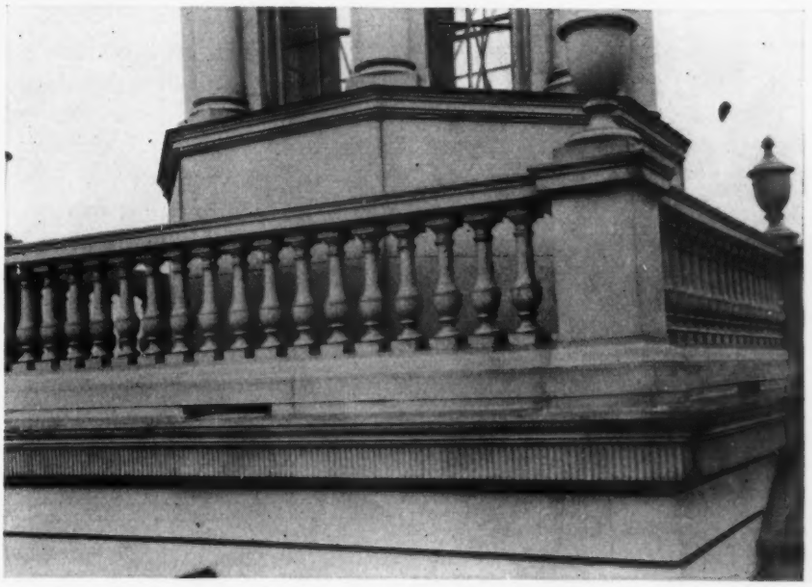


This glistening white tower of true Colonial architecture is not wood—it is 20 ounce copper, painted white. Every bit of the intricate adornment is copper. That realistic white wide siding is copper, though it looks like good carpentry work

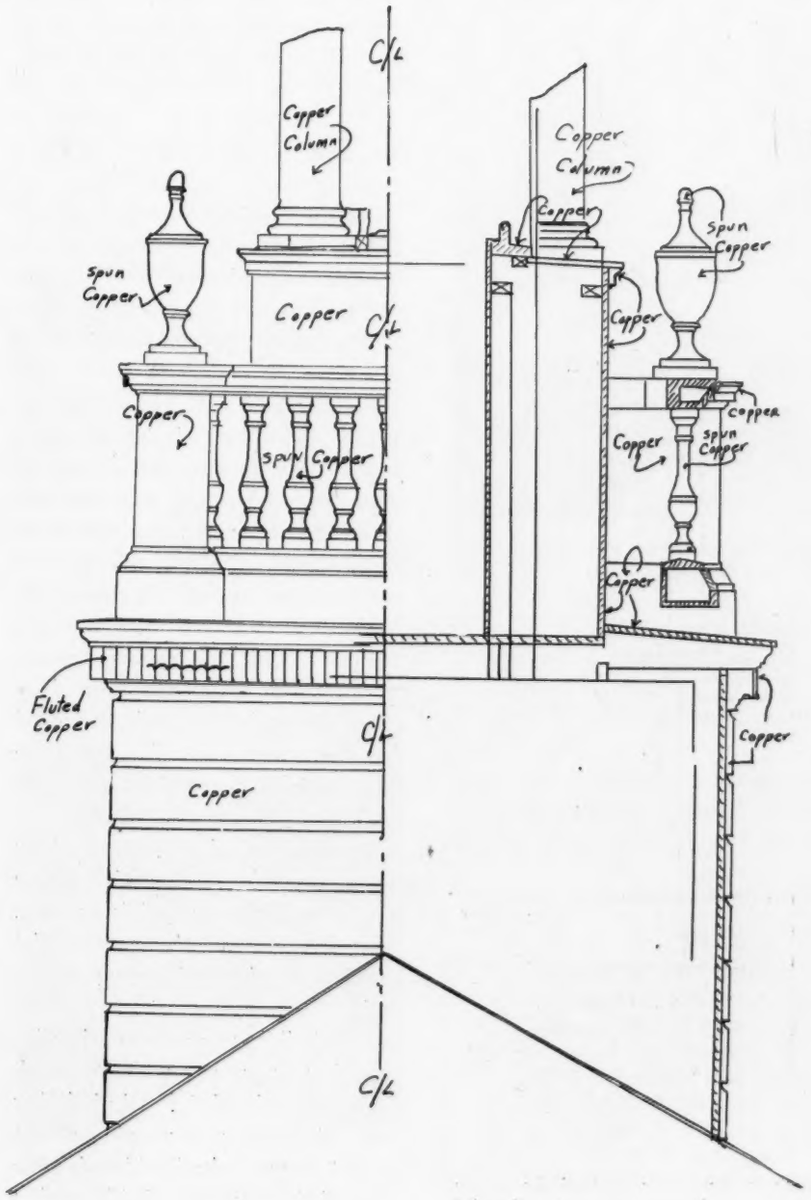
The columns with their graceful lines and deeply carved capitals are examples of the sheet metal man's art—not the carpenter's. Those balustrades and graceful urns are spun copper—all painted

ark. In addition to the tower, all the flat roofs of the main roof deck, the gutters, the roofs of the dormer windows, and the skylights are copper.

An interesting detail of the building is the use of three-pound, hard sheet lead, covering the full width of all the walls and copings under the cap stone. This attention to protective detail is typical of the architectural firm which designed the school, Guilbert and Betelle, of Newark. This firm is architect for all Delaware schools and in addition has designed some of the best known structures in the East.



Here is a closeup of the fluted molding, the balustrades and the molding under the lower columns



More than 20,000 pounds of copper were used in the job. All the copper in the tower was 20 ounce.

Most of the details of the copper tower can be seen on the detail drawings. Some of the highlights of the work are cited here for attention.

The base of the tower is rectangular and straddles the roof of the main building. Below the first deck the architectural treatment simulates the wide siding of Colonial days. This wide siding is formed in long copper sheets with the molded lap joint between horizontal members. This molded joint is not wide, but has an outward, sloping formation imitating the type of siding which laps over. This copper sheathing is supported by a wood nailing sheathing which in turn is supported on the structural frame.

At the top of this siding surface there is a cornice with a 10-inch projection and a fluted face. The fluted strips are formed in the long dimension of the sheet and are, therefore, relatively short. The seams were lapped and soldered.

The details of the copper and its supporting framework show the designing skill of an architect who knows and appreciates the possibilities and limitations of sheet metal work

The molding is seamed into a flat copper deck which runs back to the wall of the tower proper.

The tower surmounting the base is eight-sided. The lower portion is composed of wide copper sheets flat locked horizontally around the sides and seamed and soldered up the edges of the eight sides. This base is surmounted by a plain molding with less than 3 inches of projection.

The architectural feature of this first deck is a copper formed balustrade which stands on all four sides. The base of the balustrade is of copper formed up over wood framework. The corners are copper formed over a wooden framework. The corners are surmounted by spun, round copper urns of standard pattern. The top of the balustrade is copper covered over wood. The balustrades are spun.

This eight-sided base section is in turn surmounted by an eight-sided window section with large columns standing at the eight corners. The deck under the columns is copper seamed with the molding and runs back to form a copper sill for the wood sash windows. The copper is also carried under the bases of the columns.

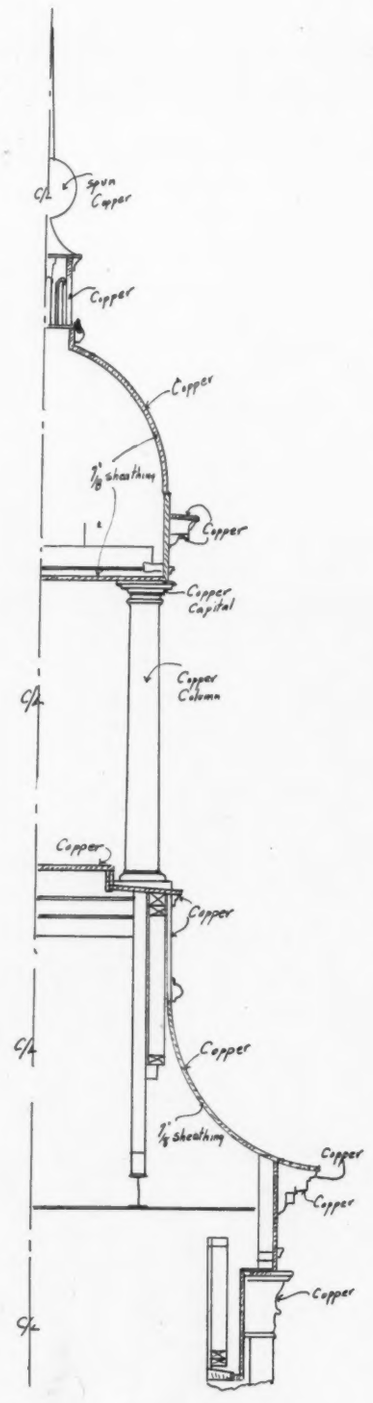
One of the most interesting details of this tower is the copper columns which stand between the windows. These columns were formed in one piece and tapered with an entasis. The entasis is a bulge of about 1 inch across the diameter of the column.

The bases of the columns are formed in copper, spun to the profile desired which in this case is a two step, round mold contour of low height and small projection.

The capitals of the columns were of standard stampings with round necks to fit the round columns. The design used is a double drop palm leaf surmounted with a square head on which rests the bottom of the roof molding. The narrow walls behind the columns and between the windows are also in copper of flat seamed design. Between the columns there are garland embellishments of standard design.

From the top of the columns the tower consists of an inverted umbrella roof and an open columned tower with a ball roof and finial. The structural part of this upper tower consists of an iron framework with suitable iron and wood lookouts.

Directly over the column caps is a small molding, then a flat vertical plain face and then the main molding on the roof. This roof is copper flat seamed and eight-sided nailed to wood sheathing. This roof sweeps upward to a round molding which is surmounted by a paneled vertical facade formed in copper. The depressed panels are plain, formed over a wood sheathing.



This is the upper part of the tower with its moldings, columns and finial

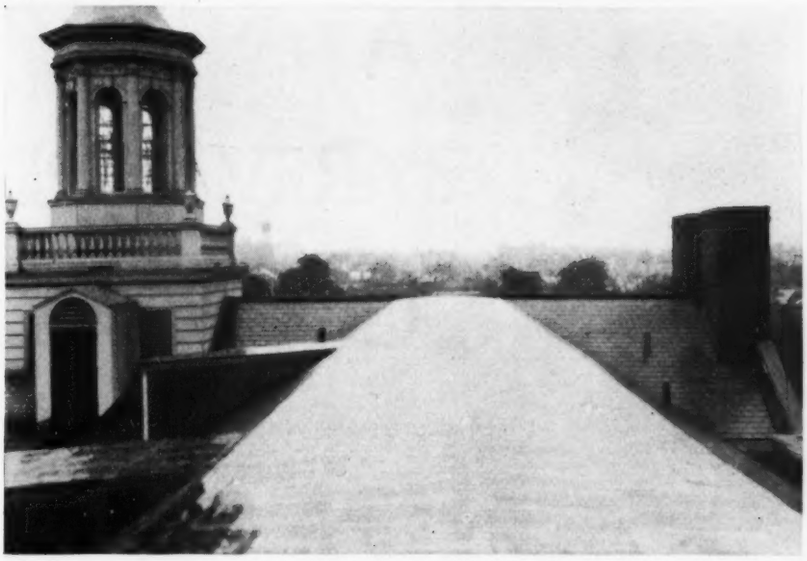
The open tower has eight columns of plain round formation with square bases and capitals of very shallow design. These copper columns encase the structural frame of the tower and were formed from a single piece of metal.

Above the columns is a channel iron and angle iron framework which is encased in a copper molding of plain design. The vertical face of this cornice has no flutes and is surmounted by a projecting, two step molding with the copper running back over the cornice to be seamed with the vertical face of the ball dome. The copper for this cornice was laid on wood sheathing held on wood lookouts.

The dome is uniformly ball-curved and is composed of wood sheathing laid on a wood bracing made rigid by turnbuckles and brace rods which run from the four corners upward to a common meeting point under the open base of the finial. The roof of the dome was stamped to shape in zones with horizontal seams and carefully seamed so that the surface appears flush. From either the ground or from the main roof this ball roof has the appearance of a one-piece metal covering. The dome is gold leaf covered.

At the top of the tower is an open columned section of built up copper made in the Steinberg shop. This is surmounted by the finial which is a spire and a spun copper ball.

The building has some other interesting features in sheet metal. The flat roofs of the main building are all copper covered in flat locked seams and all soldered. The tops of the dormers of this section



The broad flat ridge of the main building and the roofs of the dormers are copper covered—flat locked and soldered seams

are also copper covered with flat locked soldered seams. Quite a bit of copper was required for these roofs and the workmanship on them appears excellent.

The gutters are all of copper and are of the box type set in behind the stone copings. The flashing is also copper and the protecting metal under the coping caps is all copper run from inside to outside of the coping.

The contractor furnished copper skylights for the roof and copper covered fire doors for the stair openings at roof level. The back roof of the main building is dormer shaped with smaller dormers piercing the slope. The top of the main dormer has a flashing sheet running out from the copper of the deck and down over the waterproofing of the slate roof on the slope.

The gutters are copper and an edge-ridge between copper and slate is a formed copper coping

There are some large copper skylights on the building and these were built by J. Steinberg and Sons, the sheet metal contractor

While this building is a large one and from an architectural standpoint possesses several features as interesting as the sheet metal work, from our standpoint the tower outranks all other parts of the structure. In the first place this important architectural feature as now formed in copper is permanent. Regardless of whether or not it is painted it will withstand weathering. It will not be subject to decay and cracking and will always retain its good appearance.

The second reason why this is important to us is that it shows what wide possibilities there are in sheet metal work. No matter how intricate the work demanded, our contractors and stamping manufacturers are ready to turn out just what the architect wants. When our industry considers the great saving in weight effected by using skeleton iron and wood, metal covered, new possibilities are opened up at once. What the architects for this building designed can be duplicated by other architects and sheet metal contractors.

DIRECT MAILING PIECES

A lot of you fellows are using direct mail—letters, postcards, leaflets—to get leads to prospects. American Artisan would like to receive some of the ones which bring in the replies. We would also like to have information on how you mail them, to whom you mail, what kind and number of replies you got.

We would like to publish them, but we won't give your name if you don't want us to.

How about sending us a few?

A REVAMPED CONVERTED

BACK in the days before prohibition, Wisconsin was known to have several breweries. Some of them became so famous that their product was known all over the country. Scattered around the state, however, were many plants whose field was limited and whose product was not as well known. After prohibition, the old brewery buildings were thrown on the market and numerous attempts were made to adapt them to other lines of manufacturing.

It was at this stage of the game that the warm air heating man was called into the picture. Industries seeking new plants had to have more heat than was used in the brewery. Some of the manufacturers seeking a location had to have special feature heating systems in order to carry on their operations.

A typical example of this is the old brewery located in Stevens Point. The building is a brick structure with heavy exterior and partition walls and mill construction for floors. The rooms inside the building are large and high, but the walls are not pierced with as many windows as are placed in present day manufacturing buildings. The combined thick walls and small window openings meant lessened heat loss or air infiltration.

The old brewery in Stevens Point was used by several manufacturers before the present occupants moved in. The present owner operates a bakery, and his requirements are quite different from those of brewing.

One of the principal requirements is that the air within the rooms be free of dust and that the heat be uniform and of just the right temperature. Some of the rooms, such as those where the ovens are located require very little heat, while others need large amounts of heat.

The heating system now in operation was designed and installed by the Stevens Point Sheet Metal Works, local heating and sheet metal contractors. The plant has proved highly satisfactory and economical in operation.

The backbone of the system is a large size warm air furnace using a Williams Oil-O-Matic oil burner and an Ilg fan. The warmed air is carried through rectangular ducts of a compact system and blown through the rooms.

The furnace used is a large sized Perfect made by the Richardson and Boynton Company. The grates

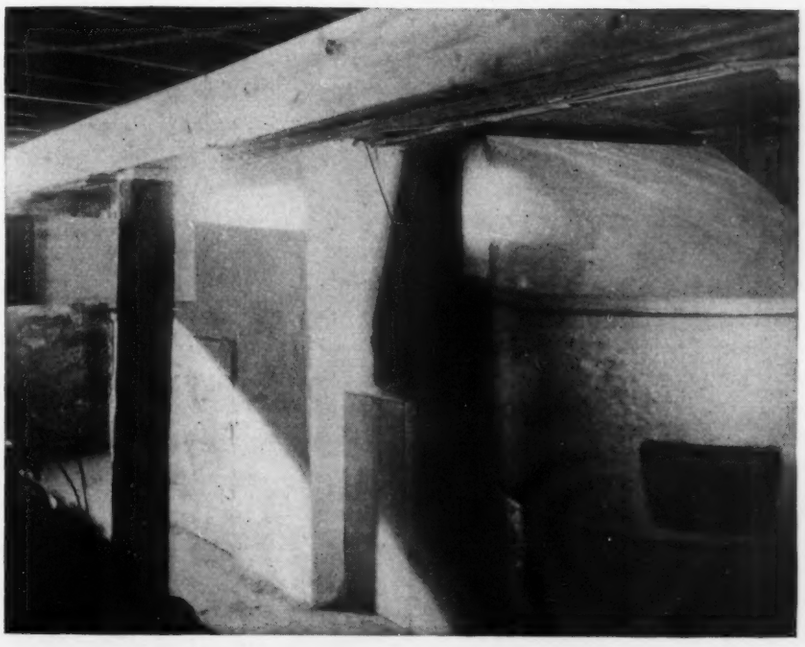
The top illustration shows the exterior of the old brewery building. The two top floors are not heated. The lower illustration shows the shop and office of the Stevens Point Sheet Metal Works. They make the ventilators shown. Also those nifty horses which show the wind direction

HEATING SYSTEM IN A BREWERY

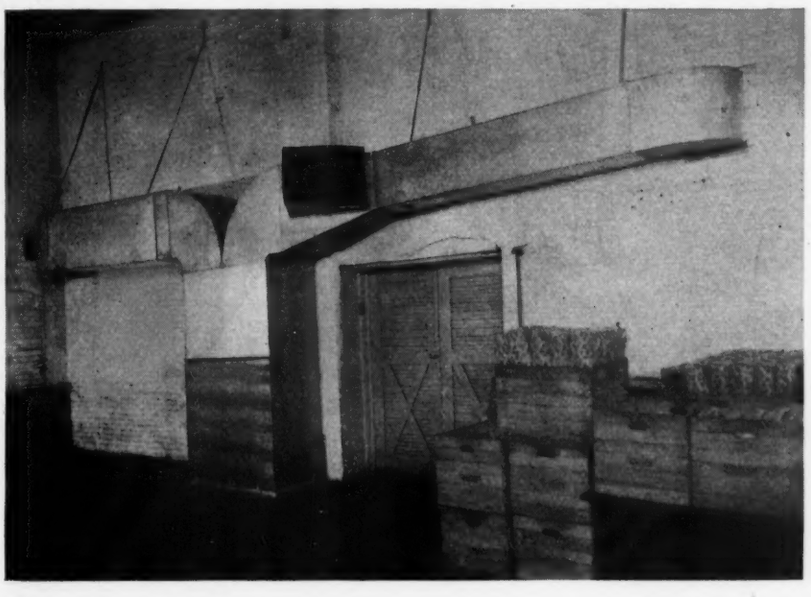
were removed and the oil burner was placed in the ash pit. As can be seen in one of the pictures the furnace sits in a pit which was extended far enough to take in the burner.

The bonnet of the furnace is made over into a round to rectangular transition, the rectangular part being 30 by 40 inches in size. This main trunk is turned 90 degrees to the right just off the bonnet and carried over to the central partition wall.

From the basement the main duct is taken up through the first floor to a height about 8 feet above the floor level. The main duct here is split into two rectangular ducts which are carried along the wall and cut through. As can be seen in one of the photographs the room through which the main duct is brought up from the basement is heated by an outlet from one of these two main branches. A quadrant damper is placed just after this outlet and can be used to regulate the amount of warm air going out through the outlet by varying the resistance to the passage of the air through the branch.



Here is the furnace in its pit. The oil burner is located in front of the ash pit door. Notice the transition fitting which forms the bonnet. One main trunk duct carries the warm air



The 30 by 40-inch main duct branches two directions about 8 feet above the floor. Each branch is controlled by quadrant dampers

The garage, which adjoins the main building, is heated by two small ducts taken off one of the branches.

The return air side of the system takes 75 per cent of the air from inside the building and 25 per cent from the outside. The return air lead and the outside cold air lead are brought to one mixing chamber set in front of the fan.

As stated previously one of the

(*Continued on page 45*)

Network of Fuel Pipe Lines Now Covers 162,335 Miles

EVERY warm air heating man has been watching the unprecedented development of oil and gas heating with interest. It has become apparent within the last two years that here is an industry which is headed places. Every few weeks we read that another pipe line to carry natural gas from far off Texas is being brought into Philadelphia or some other city, hundreds of miles away. The same is true of oil. Pipe lines carrying both crude and refined are stretching across the country in ever lengthening network.

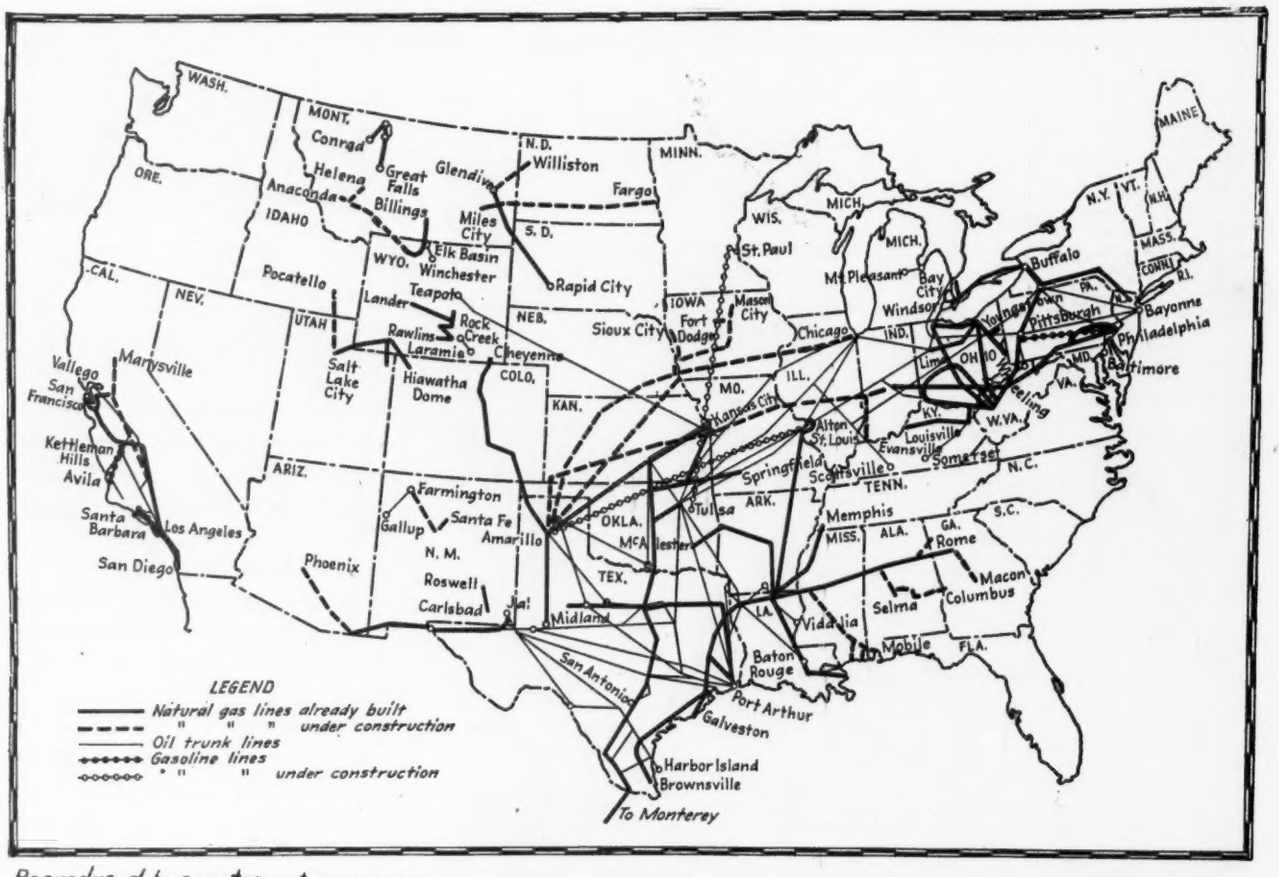
These developments mean just one thing—that these fuels are coming to take their place in the heating scheme of things. And rumors and newspaper reports arouse interest and we want to know where are these lines, where do they begin and where do they go.

AMERICAN ARTISAN through the courtesy of *The Business Week* publishes here a map and a description of these lines. From them you can get a picture of what the talk is all about and where your community now or will fit into this picture. *The Business Week* has this to say about these lines:

We again call attention to the vast system of underground lines for the transportation of piped fuel (at present limited to natural gas, oil, and gasoline) with which the country is now being equipped.

Principal points connected (or about to be) by pipe lines are shown in the accompanying map. The intricate network of short connecting arteries in Oklahoma, Texas, Indiana, and western Pennsylvania, has been omitted for purposes of clarification.

Of the 162,335 miles of pipe lines now in existence, 60,000 miles are used for piping natural gas, 102,000 miles for oil and 335 miles for gasoline. The map shows construction of new lines already un-



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America's underground steel arteries for piped fuels. Through the 162-335-mile system of main trunk and connecting lines go natural gas, oil and gasoline to a majority of the country's industrial centers, and the network is being constantly extended. Main lines only are shown here; short lines and feeders have been omitted for purposes of clarification

der way. At least 9,000 miles of trunk line will be built this year. Fuel engineers see in this enormous network more than a transportation system for the three fuels now being piped through it. They see a permanent system for the transportation of all types of piped fuel, many of which, they point out, have yet to be developed. They even see the day when coal will be transformed into gas at the mines and piped through the underground system to consuming points. One large eastern utility has gone so far as to experiment with transporting coal by pipe line, first reducing it to powder, mixing it with water, then piping it to destination, where it is dried and again becomes powdered coal.

Naturally, the increase in the use and availability of piped fuel will affect the railroads and the coal industry; to what extent is at present undetermined. Some idea of possible effects can be gained from the following facts:

Communities in 36 of the 48 states will be served with natural gas before the end of 1931. The only states in which it may not be available by that time are North and South Carolina, Florida, Nevada, Washington, Oregon, and the New England states. There is a possibility, however, that extensions of present trunk lines may be made into Massachusetts, Connecticut, Rhode Island, North and South Carolina, Oregon, and Washington.

The natural gas which will flow daily into Chicago when the pipe line to that city from the Texas fields is completed will be equal in heat content to 12,000 tons of coal (300 railroad carloads). The comparison with coal quantities is rough, of course, inasmuch as it assumes that the gas will be burned with the same efficiency as coal.

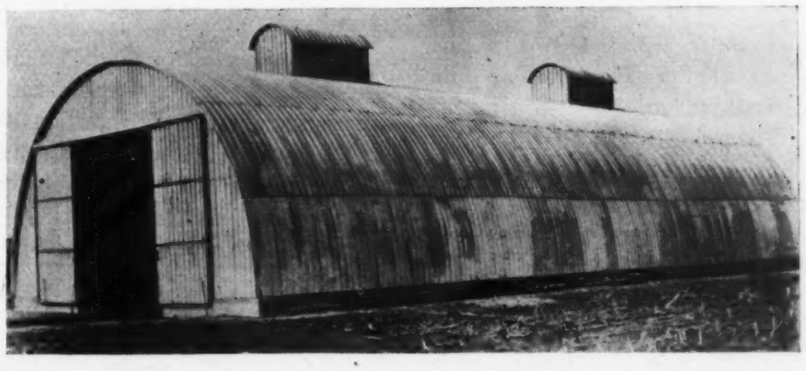
Natural gas used in 1928 (latest figures available) for industrial purposes equalled 15 million tons of coal; for house heating, 30 million. Combined, the two uses would account for 45 million tons. Total consumption of coal yearly is approximately 570 million tons.

Railroad and coal men point out, as some cause for optimism, that natural gas will be used in hundreds of communities only to supplement the manufactured product, and manufactured gas plants will, for the present at least, operate at about their present rate; that new business will be acquired to take care of the supply added by introduction of the natural; that the present demand for coal will continue for the immediate future together with tonnage for the rail carriers. They are silent, however, when questioned as to the ultimate effects of piped fuel.

Public utility interests, too, are watching the development of the pipeline system, not exactly with apprehension, but with nervous interest. Some of them, apparently sensing possibilities, have themselves entered the natural gas field (Columbia Gas & Electric, Insull interests, Pacific Gas & Electric, Electric Bond & Share, to name a few of the more important ones). Indications are, also, that a larger amount of gas will be used for generation of electric power.

An analysis by *Electrical World* shows that, during the first 5 months this year, 47,682 million cubic feet of natural gas were used to generate electric power—a 20 per cent increase over the same months last year. Of the natural gas consumed in this way, Texas uses 38 per cent; California, 22 per cent; Louisiana, 15 per cent; Kansas, 9 per cent.

New Type Farm Building Made of Corrugated Iron



A new type farm building has been introduced recently into the Middle West for storing wheat and agricultural equipment. The building is designed so that it has no exterior posts and is supported by fabricated steel trusses 15 feet apart. Angle iron purlins run from end to end, 4 feet apart on the trusses. The covering is galvanized iron sheets.

The building is 40 by 90 feet and weighs about 30,000 pounds. This building provides the largest storage space with the least expense and with the greatest strength against wind stresses. In buildings of a similar design the roof has been flattened out and the side walls made perpendicular for 6 or 8 feet in height so that windws may be installed. This type of building was originated in the wheat belt to serve as a temporary storage for grain and a permanent storage for the large combine reapers and harvesters.

FAN FUNDAMENTALS [Part V]

With Particular Reference to the Use of Fans in Heating

By **G. A. VOORHEES**
Heating and Ventilating Engineer, Indianapolis, Ind.

In the previous articles of this series on furnace fans, it was shown that fans could be divided into two groups, the booster-type fans and the pressure type. The booster fan as its name implies, is used only to accelerate the normal gravity flow of air. The pressure fan, being so arranged that there is no possible path for the air to "short circuit" backward from the discharge side to the intake side of the fan, builds up more or less of a positive pressure in the system and thus forces the air circulation against the retarding effect of frictional resistance.

Another way to classify fans is according to mechanical structure and we again find two distinct types, the propeller fan and the centrifugal fan.

The propeller fan (Fig. 1) acting on the principle of the inclined plane, moves air by a thrust effect in a direction parallel to the axis of rotation.

The centrifugal type (Fig. 2) has its blades extending radially from the axis of rotation and by the centrifugal force generated in the rotating air column, drives the air from the center outward around the entire periphery of the fan wheel where it is collected and directed by the fan housing.

The propeller fans on the market may be found with blades in an almost infinite variety of width, length, pitch, curvature and number.

Centrifugal fans are to be had with from six to a dozen or more large blades or with from 48 to 64 narrow blades in an unlimited number of degrees of curvature; some curve forward in the direction of rotation, some backward, and some double curved like a modified letter S.

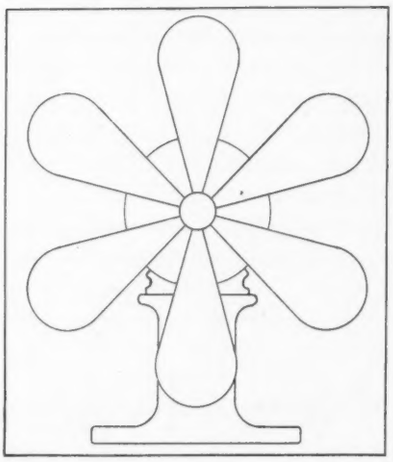


Figure 1. A "propeller" type fan thrusts air away from it. The air is "pulled" through the blades and "thrust" straight ahead. The air movement is a straight line

Each modification of shape, size, number of blades, speed, etc., in either the propeller or centrifugal type, gives a different air handling action. Some drive the air at high velocity, some at low; some are quiet and some noisy; some work efficiently against high frictional resistance while others are utterly useless under the same conditions; some are well adapted to fan-furnace systems, others fail in such service.

Fortunately the *general* characteristics of different types can be studied and their performances in warm air heating systems compared without delving into confusing technicalities. (It should be borne in mind in this connection, that some of the technical facts stated in this series of articles, are only approximately true. This is done purposely to avoid confusing technicalities and it is believed that the statements

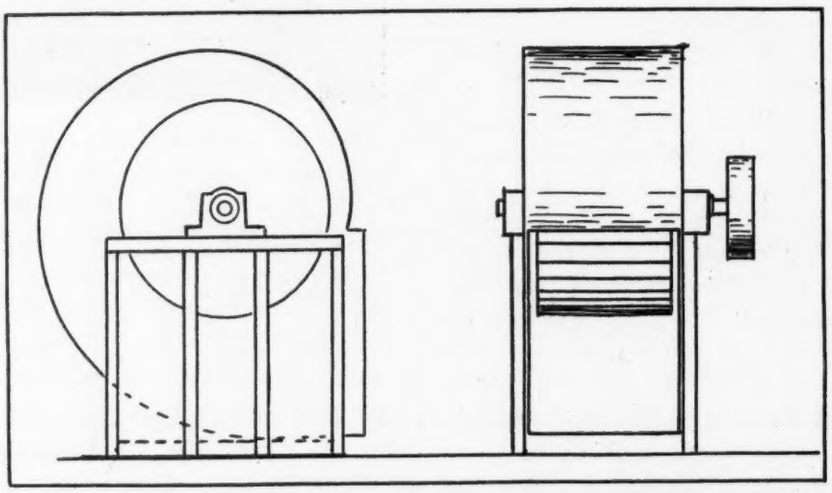


Figure 2. The "centrifugal" type fan, on the other hand, throws the air outward from the hub. The housing, in this type, is depended upon to guide the air in the direction desired

G. A. Voorhees

made are sufficiently accurate for practical purposes.)

Since the propeller fan moves air by virtue of the thrust effect or impact of an inclined plane moving through the air, it is evident that the force imparted by a given section of the blade depends on the space traversed by that particular blade element in a given time.

Consider then, the three elements A, B and C (Fig. 3) of one blade of a propeller fan running at a speed of 1150 revolutions per minute (R. P. M.). If the elements are located 8 inches, 4 inches and 2 inches, respectively, from the axis of rotation, it is evident that the space traversed by each in one second of time is:

8 in. × (1150 R:PM. ÷ 60 sec.) × 2 × 3.1416 = 963 in. (Element A)
4 in. × (1150 R.P.M. ÷ 60 sec.) × 2 × 3.1416 = 482 in. (Element B)
2 in. × (1150 R.P.M. ÷ 60 sec.) × 2 × 3.1416 = 241 in. (Element C)

The factor 2 in the above equations is used because the distances, 8 in., 4 in., and 2 in., respectively, are *radial* distances and the circumference of a circle is 3.1416 times the *diameter* which is twice the radius.

Thus the forces imparted to the air by the three blade elements A, B and C, respectively, are in numerical order, 963, 482 and 241.

The continued proportion

963 : 8 :: 482 : 4 :: 241 : 2

shows that all of the above is merely a roundabout way of saying that the force imparted to the air by a given blade element in a unit of time is proportional to the radial distance of the blade element from the axis of rotation. That this is a vitally important fact, however, in studying the performance of a pressure type propeller fan is demonstrated as follows:

If such a fan is placed in a dampered pipe (Fig. 4), the damper position may be set to represent the frictional resistance to air flow that would exist in a given warm air heating plant. Damper position 1 offers little obstruction to flow and might be likened to a small warm air furnace system having short, straight and amply large pipes. Positions 2 and 3, offering progressively greater obstruction to flow, are equivalent in "back pressure" to warm air systems having longer and smaller pipes with correspondingly greater frictional resistance to retard air flow.

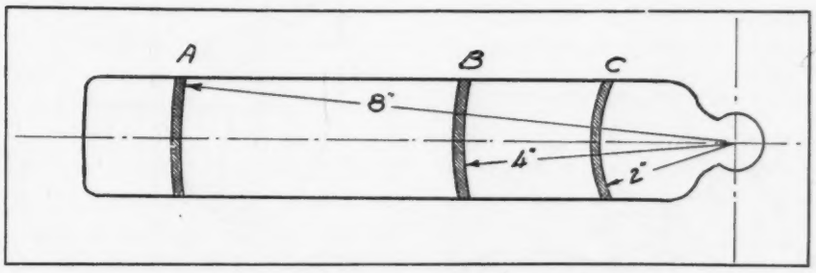
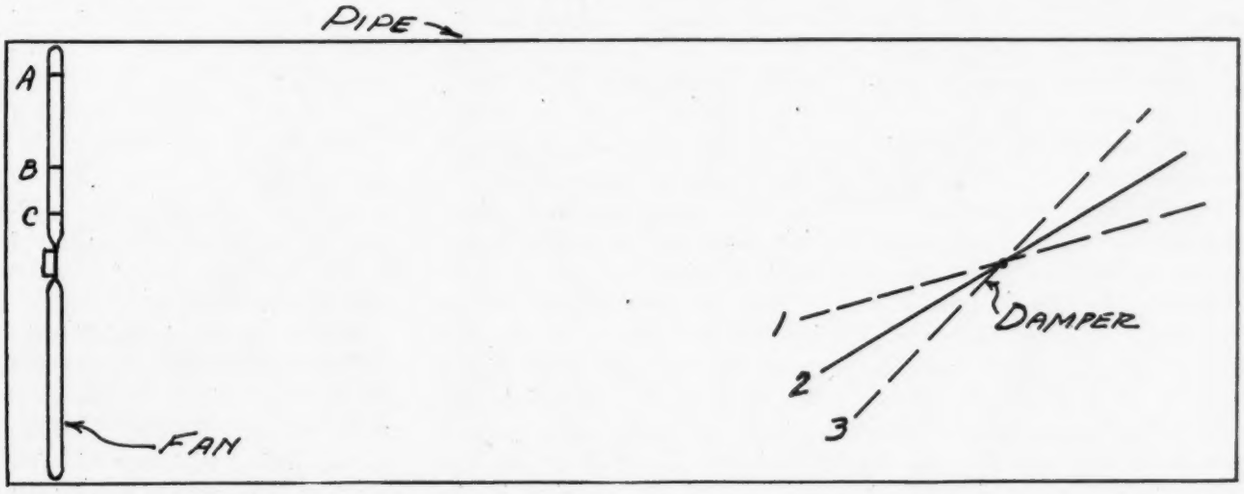


Figure 3. Blade width and length are vital factors in calculating the performance of a fan. The adjoining text explains the importance of such elements A, B and C. Here these elements are shown

If it is assumed that the magnitude of frictional resistance (static pressure) with the damper in position 2 is exactly equal to the thrust effect or forward pressure generated by blade element B, it is obvious that at this point on the



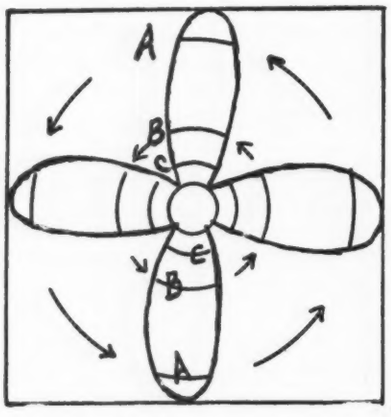
If we had an adjustable blade and cut off its length at B and the amount of air this shortened blade would move was just equal to the static pressure of the pipe, it is evident that the fan would move no air. Every inch added to the length, then determines how much air the fan will move

blade, the two forces counterbalance and there would be no air flow through the propeller in either direction.

Between the point B and the tip of the blade, the forward pressure at any point such as element A, is greater than the resistance or back pressure caused by the damper in position 2 and this part of the fan propeller overcomes the resistance and drives air forward.

Between B and the center of the fan, the forward pressure at any point such as A, is *less* than the back pressure and for that reason *air will flow backward through the fan.*

This condition will always exist if a propellor fan of the type just described is called upon to drive air against the excessive frictional resistance of long, crooked or small



Increased fan capacity can be gained by speeding up the fan. The percentage of increase is in ratio with the higher speed

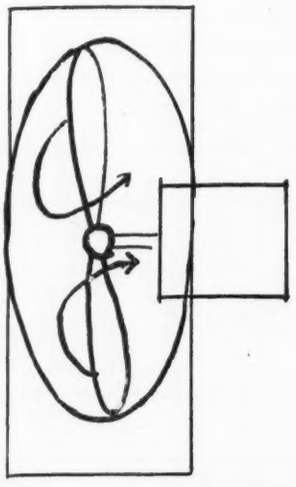
pipes and while the fan may do the work intended, its efficiency drops off sharply and the power consumption is too great.

On the other hand, it should be remembered that in well designed warm air plants in buildings of moderate size, the frictional resistance to be overcome by the fan is relatively slight with the furnace in operation. This is especially true if the pipe areas are not less than two-thirds the areas obtained by following Standard Code rules and in a great many cases pipe sizes can be reduced to 50 per cent of Standard Code size without impairing fan efficiency.

The capacity of a propeller type of pressure fan in a warm air plant can be increased by an increase in R.P.M. The relation between fan speed and force imparted to the air may be seen by comparing the space of 482 inches traversed by blade element B in the foregoing example at a speed of 1150 R.P.M. with the space traversed by the same element at 1750 R.P.M.

4 in. (1750 R.P.M. ÷ 60 sec.) × 2 × 3.1416 = 733 in.

Thus at the higher speed, taking



Capacity is also on the number of blades on the fan. With only a few blades there is but slight blade area to keep air from flowing back through the fan

the space traversed as a measure of the thrust effect, the force imparted to the air by element B is (733 — 482) ÷ 482 = 52 per cent greater than at a speed of 1150 R. P. M.

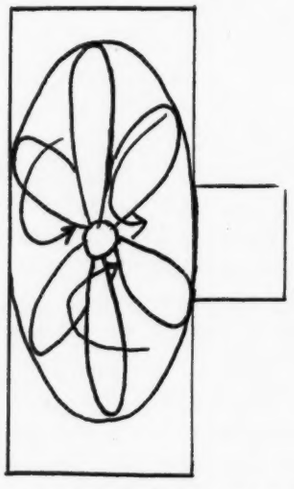
The capacity of a propeller fan working against resistance also varies with the number of blades which explains why a two-blade fan of the airplane propeller or similar type, is sometimes a disappointment when applied as a pressure fan in a warm air system especially where high speed is objectionable on account of noise.

With any pressure-type furnace fan, the air pressure on the discharge side is appreciably higher than on the suction side of the fan and, as previously stated, there is a backward flow through the central part of the propeller in the usual fans of this type.

Tests show that as the number of decreases and the interval between blades becomes greater and as the air pressure builds up on the discharge side there is a pronounced tendency for a backward air leakage over the entire area of the propeller.

As the number of blades increases and the space between them becomes smaller, the blades follow each other so quickly past a given point that there is less time for the air to leak backward from the area of relatively high pressure on the discharge side to that of low pressure on the suction side of the fan.

The same effect is secured by increasing the speed of the fan in revolutions per minute, but where quiet operation is essential, this



If we add more blades we reduce the space between blades and the time in which air can sneak back through the fan is cut down. This increases the fan's capacity at the same speed

higher speed invites complaints of noise due both to vibration and the slashing of the blades through the air. The tips of the blades of a 16-inch fan running 1750 R.P.M. are rushing through the air at a speed of 83 miles an hour; a 20-inch fan at the same number of R.P.M. has a tip speed of over 100 miles per hour.

As a booster fan placed inside the cold air shoe or duct to accelerate the air flow without building up much pressure, the airplane blade has the distinct advantage of offering very little surface to obstruct free circulation when the plant is

(Continued on page 45)

How Come You Fellows Missed That Error In

What Is Relative Humidity?

IN the April 12 issue of AMERICAN ARTISAN we published a short article entitled, "What is Relative Humidity?" This story explained how relative humidity is calculated and gave a simple formula for working out the percentage of relative humidity.

Through printing fault the result of the formula as published is not correct, so if any of you fellows are using this formula you will have to discard it and substitute the one published here.

This error was called to our attention by several of the readers, but the letter from A. G. Sutcliffe, Engineering Department, Ilg Electric Ventilating Company, Chicago, in addition to explaining the error is especially interesting since Mr. Sutcliffe also sends us a relative humidity chart which every heating man ought to copy out and paste in his file of data. Mr. Sutcliffe's letter follows

"In the April issue of the AMERICAN ARTISAN on page 29—under the subject of "Relative Humidity," there appears to be an error in the figures shown for working out the percentage of relative humidity when a cubic foot of saturated air is heated from 0 to 70 degrees without the addition of any moisture. The figures shown are:

$$\frac{0.472}{8.069} = .58 \text{ or } \frac{58}{100}\%$$

The decimal point and the conversion into percentage is obviously incorrect, as the percentage should be 5.8. The writer believes that the better arrangement of the figures would be:

$$\frac{0.472 \times 100}{8.069} = 5.8\%.$$

"In connection with this matter of relative humidity, the writer has worked out a chart based on standard air at 70 degrees, 100% moisture content, showing figures of what might be termed comparative humidity. This chart is found to be very handy for conversion to any other percentage of relative humidity or moisture content, but it must be borne in mind that the whole chart is based on standard air at 70 degrees Fahrenheit.

"Figures shown in the body of the chart represent the percentage of the humidity when referred back to 70 degrees air. For instance, if the air is 100% saturated, air at zero only contains 5.8% as much moisture as at 70 degrees, and air at 50 degrees, 100% saturated, only contains 51% as much moisture as air at 70 degrees saturated; also, by following out the various relative humidity columns, it will be found that air at zero degrees, 50% saturated, only contains 2.9% the moisture as does air at 70 degrees fully saturated. The writer is not aware that any similar table of comparative humidity has been published, but believes that this table is very useful for reference. A copy is enclosed."

The chart which Mr. Sutcliffe uses is presented below. By reading the above text you can readily understand how simple this chart is and how much useful data it places right at hand. We should like to have your comments on this chart.

Percentage Chart of Comparative Humidity

Based on Standard Air at 70-degrees F. 29.92 Barometric Pres.

Temp. Degr.	Grains Moist. Per	Saturation, Per Cent	Relative Humidity									
Fahr.	Cu Ft.	100%	90%	80%	70%	60%	50%	40%	30%	20%	10%	0%
100	19.98	247	223	198	172	149	124	99	74	50	24.8	....
95	17.32	214	193	171	150	128	107	85	64	43	21.4	....
90	14.96	185	166	148	129	111	92	74	55	37	18.5	....
85	12.89	160	144	128	112	96	80	64	48	32	16.0	....
80	11.06	137	123	109	96	82	68	55	41	27	13.7	....
75	9.46	117	105	94	82	70	58	47	35	23	11.7	....
70	8.069	100	90	80	70	60	50	40	30	20	10.0	....
65	6.855	85	76	68	59	51	42	34	25	17	8.5	....
60	5.804	72	65	57	50	43	36	29	22	14	7.2	....
55	4.895	61	55	49	43	37	30	24	18	12	6.1	....
50	4.113	51	46	41	36	30	25	20	15	10	5.1	....
45	3.442	43	39	34	30	26	21	17	13	8.6	4.3	....
40	2.868	35	31	28	24	21	17	14	10	7	3.5	....
35	2.380	29	26	23	20	17	14	11	8.7	5.7	2.9	....
30	1.943	24	21	19	17	14	12	9.6	7.2	4.8	2.4	....
25	1.550	19	17	15	13	11	10	7.6	5.7	3.8	1.9	....
20	1.237	15	13	12	10	9.0	7.5	6.0	4.5	3.0	1.2	....
15	.980	12	11	9.6	8.4	7.2	6.0	4.8	3.6	2.4	1.2	....
10	.77	9.5	8.5	7.6	6.7	5.7	4.8	3.8	2.8	1.9	.95	..
5	.600	7.4	6.6	5.9	5.2	4.4	3.7	3.0	2.2	1.5	.74	..
0	.470	5.8	5.2	4.6	4.0	3.5	2.9	2.3	1.7	1.2	.58	..

OVERHEAD EXPENSE

By **FRANK C. PARK***

In the August 2 issue we publish an article on the new cost records of the N. S. M. C. Association. Here is another article on overhead which has been taken from the same system. This system closely follows the Overhead plan of Joseph G. Dingle who has written our series on Cost Accounting

THE purpose of this article is not to tell what percentage must or should be figured as overhead, or what profit you should make. It is to call your attention to the necessity of knowing what overhead expense is, and to try to explain how to find and apply that knowledge in your business life.

Scientific business management and cost accounting is a comparatively new study. The factory with the repetition of processes, its piece work and its whole production where the clipping of one or two seconds, or two or three operations of several hundred employees makes a difference of hundreds of dollars per week, of course, occupies a position in relation to cost accounting that never will nor can be approached in our business. Nevertheless, we also have our problems along these lines that require our attention.

Our various trade publications have been full of accounting and bookkeeping for several years. Still in spite of all this publicity, out of 40 sheet metal contractors to whom I have put a point blank question a short time ago, only 3 have gone into the matter in detail in their own business; 10 had made a stab at it in a half-hearted manner; a number of the remainder made a guess, and 20 never had taken up the matter at all.

One of our local younger members, to whom I had put the question, told me, that after a man had done contract work for a little while, he would come pretty d—near knowing whether he was making anything out of it or not. Gentlemen, that is about as near as the most of us get to it. The truth is, the most of us don't know, and some of us don't want to know. We are jogging along fairly comfortably and are afraid to know what we are really doing. Now, why this apathy regarding so important a matter? It is mostly carelessness, largely lack of knowledge as to how to go about it and foolish fear of our inability to handle the matter. One frequent excuse is lack of time which is purely imaginary, but mostly it is the lack of tempermental information.

We are like a little boy who coming home the evening of the first day of school was asked by his father what he had learned. He said, "Well, Pop, I have learned one thing, and that is that I need a thicker pair of pants."

The first thing that strikes us when we look this question squarely in the face is that we also, figuratively speaking, need a thicker pair of pants.

What Is Overhead Expense?

The next question is, what constitutes or is chargeable to overhead expense? Broadly speaking, overhead expense is all expense or money paid out which is not directly charged or chargeable to a customer or provided for in an estimate for contract work.

There are a number of lists of items that have been published during the past few years and which are used by men in our trade who are talking on this subject, some of which you unquestionably have already seen and gone over. I may, however, be able to show you the why and wherefor.

Overhead expense consists of the following: Salary, Rent, Light, Heat, Power, Telephone, Telegraph, Horse and Wagon, Automobiles, Bookkeeper, Insurance, Taxes, License Fee, Carting and Freight, Carfare, Tools, Collections, Bad Debts, Drivers, Waste Material, Replacing Defective Material, Labor Lost, Discounts and Allowances, Postage, Printing and Stationery, Association Dues, Alvertising, etc.

Salary

The first item on our list is salary. Many men say why salary; the proprietor gets all the profit there is, where does he come in for salary?

The fact, however, is that salary is not profit, and for this reason, we cannot speak of profit until a job has been finished, charged and paid for; until an operation has been completed—profit as such does not come into existence.

The necessity of salary or cost of management, however, comes into existence the minute you open your door for business and sometimes even before that. Therefore, salary is justly chargeable to overhead expense and cannot be considered profit.

The next question then arises, how much is a man entitled to charge for salary in his overhead expense account?

The professional accountant tells us, just as much as he can earn somewhere alse, or just as much as he would be obliged to pay someone else for doing that work.

If a sheet metal contractor works with the tools part of the time

*Manager, Trade Associations Service Company, Pittsburgh.

which is charged to a customer or provided for in an estimate, this is not overhead expense. For example, a man working half of the time with the tools, should charge half of his time as productive labor and half as overhead expense.

My object, as stated in the beginning was to show you how to handle this proposition of overhead expense and profit percentage, not telling you what your overhead expense is nor what profit you should get or estimate to obtain. These are things each man must find out and decide for himself.

The underlying thoughts are:

First, that we should know what proportion our overhead expense is of the business we do, though we can provide for sufficient expense loading to cover this item.

Second, that we should use such methods of estimating contract work as will reasonably assure us of the percentage of profit we estimate or expect to obtain therefrom, be it 2 or 20 per cent.

Third, that we should know how much and what percentage of profit we are really receiving from our business, in justice to ourselves, our families, our customers and our jobbers or supply dealers. In short, to use every means that will help us to know instead of guessing.

Method of Figuring Overhead Expense

The proper method of figuring overhead expense in the sheet metal contracting business, is by dividing your overhead expense by your productive pay roll for the preceding year, thereby giving a pre-determined percentage to follow for the present year, estimating of course, that your volume of business will be the same or more than last year and that your overhead will not vary greatly. In other words, if your productive pay roll for 1929 was $40,000 and your overhead expense $20,000, your overhead percentage would then be 50 per cent.

We show a sample Overhead Expense Statement filled out for your information:

Some people figure overhead expense on material and labor in some classes of business, which is all right, but in the sheet metal business where the question of material is so changeable, and to protect the sheet metal contractor, if he will figure it on productive pay roll only, he will be treating all customers alike and not penalizing the man who puts on a copper roof as against the man who had a tin roof put on.

Overhead figured on this basis works out as follows. Supposing you were doing a certain job and the details were:

Material Cost	$ 40.00
Labor Cost	80.00
Overhead 50% of Productive Labor	40.00
This would show a total of	$160.00

In order to make yourself 20 per cent net profit on sales price, you would figure as follows:

Cost or $160.00×100÷80 would give you a selling price of $200.00 for the job. Deducting the cost of the job or $160.00, it would give you a profit of $40.00, or 20 per cent net on the selling price.

Proof of Same

20% Profit on selling price of $200.00	$ 40.00
20% Overheal on selling price or 50% on Pro. Labor	40.00

(Continued on page 47)

NATIONAL ASSOCIATION SHEET METAL CONTRACTORS
LAW AND FINANCE BUILDING—PITTSBURGH

OVERHEAD EXPENSE

THE FOLLOWING FORM IS RECOMMENDED FOR ASCERTAINING THE COST OF CONDUCTING BUSINESS.
IF YOU DO NOT KEEP YOUR JOB WORK—"SMALL, LARGE AND STORE SALES" SEPARATE, YOU MAY USE TOTAL COLUMN.

FILL IN AMOUNT FOR THREE ITEMS ENUMERATED BELOW FROM YOUR BUSINESS FOR 1929—

GROSS BUSINESS (THIS MEANS YOUR WHOLE BUSINESS) $ 100,000
PAY ROLL (THIS MEANS THE MONEY PAID BY YOU FOR WHICH YOU HAVE MADE A CHARGE) $ 40,000
OVERHEAD OR EXPENSE OF DOING BUSINESS $ 20,000
"THIS MEANS THE MONEY PAID FOR THE ACCOUNTS ITEMIZED BELOW"
PER CENT OF OVERHEAD TO PRODUCTIVE PAY ROLL % 50%
PER CENT OF OVERHEAD TO GROSS SALES % 20%

Prepared for National Association Sheet Metal Contractors.

ACCOUNTS	JOB WORK SMALL	JOB WORK LARGE	STORE SALES	TOTAL
TRADE AND DAILY PAPERS				125 00
MERCANTILE REPORTS				20 00
COLLECTIONS — OFFICE EXPENSE				105 00
SALARIES—OFFICE AND MANAGEMENT				6000 00
AUTO OR TRUCK EXPENSE				3000 00
ADVERTISING AND DONATIONS				250 00
STORE EXPENSE AND CAR FARE				
LABOR—NON-PRODUCTIVE, LOST TIME				2000 00
TOOLS AND REPAIRING				250 00
SHOP EXPENSE AND CAR FARE				
LIGHT, HEAT, POWER				300 00
TELEPHONE, TELEGRAPH				75 00
PRINTING, STATIONERY, POSTAGE				225 00
RENT				900 00
TAXES—WATER, CITY, COUNTY, STATE				150 00
DUES				50 00
LEGAL—ATTORNEY FEES, ETC.				250 00
INSURANCE—FIRE, LIABILITY, ACCIDENT, COMPENSATION				500 00
INTEREST AND DISCOUNT				
BAD DEBTS				2000 00
DISCOUNT AND ALLOWANCE				2000 00
FREIGHT, DRAYAGE EXPRESS				500 00
DEPRECIATION				1000 00
TRAVELING, ENTERTAINING				300 00
TOTAL OVERHEAD				20000 00

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This is the Overhead Expense sheet of this system. Notice how many items there really are which must be counted in your overhead. You probably overlook one-third of them. The text explains how the items were filled in

Air Conditioning

HOME-MADE WEATHER

By
MARGARET INGELS, M.E.
Carrier-Lyle Corp., Newark, N. J.

This article is the third in the series by Miss Ingels. In the first article, published July 19, the relation of human comfort to air conditioning was discussed. In the second article published August 2, Miss Ingels related how air conditioning could be applied to home conditions. In this article some of the more apparent effects of having or not having conditioned air are given. These effects are sales points to tell to women when you are selling that modern heating system

THERE are four important factors that must be under exact control when weather is made-to-order weather. The first factor is temperature, and is one on which we have concentrated ever since man first learned the use of fire. This factor is important, but is only a "blank check without a signature" when providing "conditioned air." Relative humidity, motion and cleanliness of air are equally as important.

We can realize that temperature alone is not an index to comfortable air by recalling a few of our own experiences. Some days in summer are more comfortable than others even when the thermometer indicates the same degree of heat. Most of us know this about air and voice our knowledge in "it isn't the heat, it is the humidity." We know that often in winter a room feels too cool at 70 degrees and here the situation could be correctly described as "it isn't the lack of heat, it is the lack of humidity."

The influence of the motion of air on our senses can be cited also in our own experiences. Great relief is felt on warm summer days when there is a "breeze stirring." A winter day seems much more severe when there is a "high wind." Motion of air in relation to our comfort has been a known factor through the ages as shown by the forced circulation produced by the fans of oriental slaves.

A factor that has grown more complex as civilization has advanced is cleanliness of air. The pollution of city atmosphere gives evidence that we have many improvements for which to strive. One improvement is now established, and that is the ability to filter out the dust particles that are ever present in uncleaned air.

A positive control of these physical properties—temperature, relative humidity, motion and cleanliness, is obtained in apparatus which provides made-to-order weather in the home. The same engineering principles that have proved a success in the industries, theatres, department stores, office buildings—and in our own U. S. Capitol building, have been applied in an air conditioning unit for our homes in winter.

Margaret Ingels, M. E.

The home maker is in a position to appreciate the satisfactory results of conditioned air in the home, because she realizes the dryness of air in homes that are heated only. She sees the harmful effects caused by the rapid drying of the mucous membrane and the colds that result. She is conscious of our "weathered" complexions. She notices cracked panels, warped woods and squeaky floors, and the excessive wear of fabrics due to being dried out until the fibres are brittle. She is the one who must face the difficulty of keeping the home clean when cleaned air is not provided. Most of all the home makers welcome air conditioning because of the even distribution and uniform temperature and relative humidity that is maintained automatically and efficiently.

Development of a Three-Piece Elliptical or Oblong Elbow

By **W. R. HAINES**
Contributing Editor

THIS elbow is not a true ellipse, but is flat on the long side. A true ellipse will follow in another issue.

Pipe and elbows of this shape were used in practically all of our ship ventilation while I was in the Government Navy Yard at Philadelphia. Where they had to be fit up against the next deck, they were made flat on top with curved corners, and the layout was practically the same.

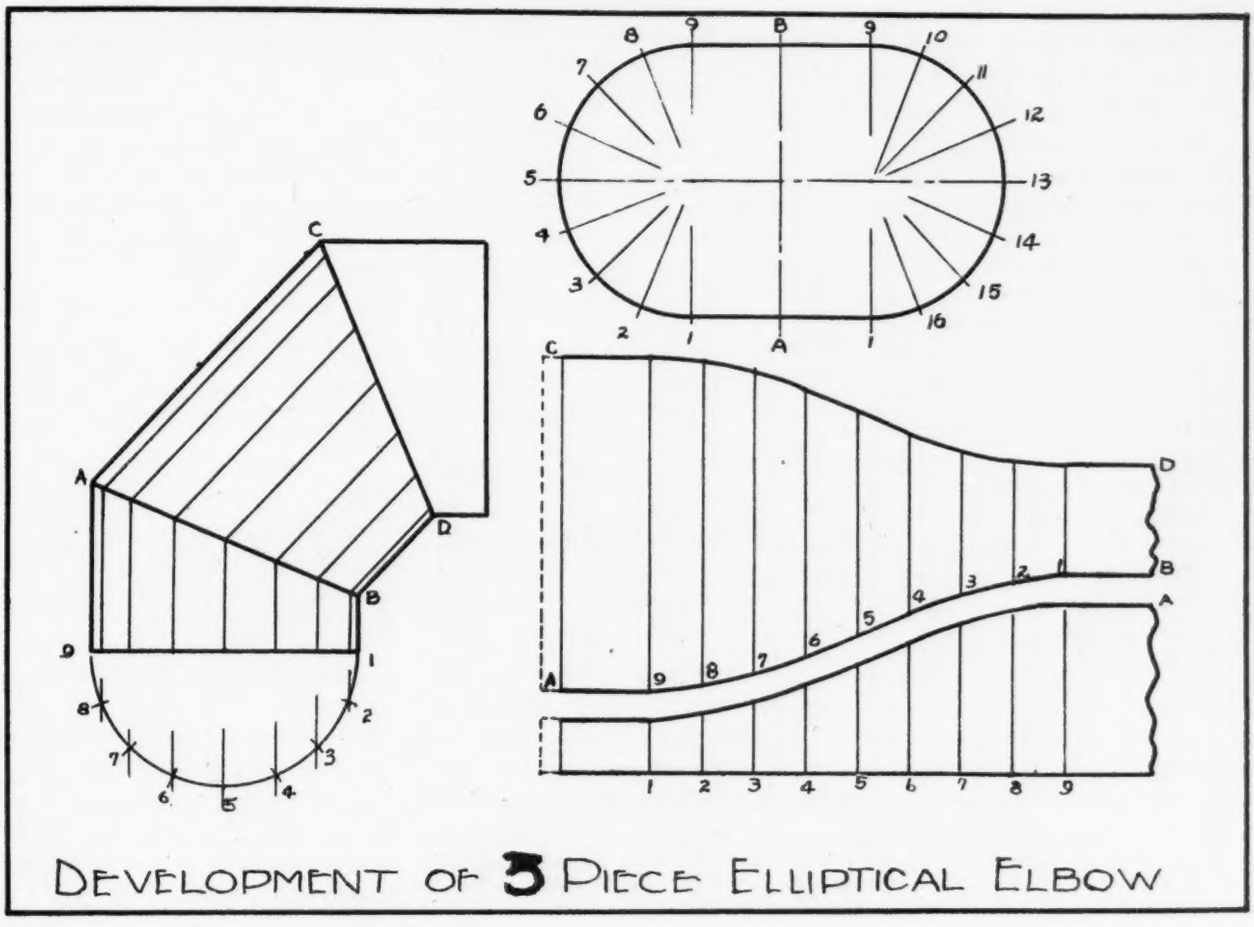
The development of this elliptical elbow is much the same as any round elbow, only the two half-circles are pulled apart, as you will note in the end view. First, draw a profile or side view of the elbow, using a throat radius equal to half the diameter of the round part of the elbow. Then, determine the rise of your mitre line AB, or its angle. In a shop where you have no drawing board, you could use the dividers and step off five equal points, or four spaces, but on a drawing board you would use a 22½° triangle or protractor.

After determining the angle of your mitre line AB, the next step is to scribe the semi-circle 1-9, and then divide it into an equal number of spaces. Then, from points 1, 2, 3, 4, etc., on semi-circle, project straight lines to intersect mitre line AB.

The next thing is to determine the true circumference of your elbow, being sure to add the flat sides, 1A1 and 9B9. After finding the exact circumference, make a stretch-out of the elbow, starting with half the flat side, then the semi-circle, then half the other flat side. (You will note we are only laying out a half pattern.)

Divide the stretch-out of the semi-circle into the same number of equal parts as the semi-circle itself. Then project lines from the profile to the stretch-out, being careful to have the parallel lines intersecting the vertical lines of the same number. Allow for rivet or lock seam as desired. Seam can be put at the throat AB or at the side at point 5-5.

This elbow, you will note, turns on its long axis. The next drawing will show one just the opposite.



If You Know Something About Drafts

Tell Us What Ails These Furnaces

WE are presenting here a very interesting problem in heating. The problem was sent to us by Eugene Gissinger of Wauwatosa, Wisconsin.

This problem has to do with the peculiar action of a pair of furnaces installed side by side in the basement of what we call a two-flat building. Perhaps you know it as a duplex. Or what have you?

The two drawings show the layout of the system. As you see, both smokestacks exhaust into a common flue which is in good condition so far as an outside examination shows. This flue is 8 by 8 inches outside dimensions and is of fire clay in a sound brick chimney.

This article more or less supplements the two articles on chimneys which appeared in the July 5 and July 19 issues. This problem has some unusual features, but also several features which the furnace man frequently meets

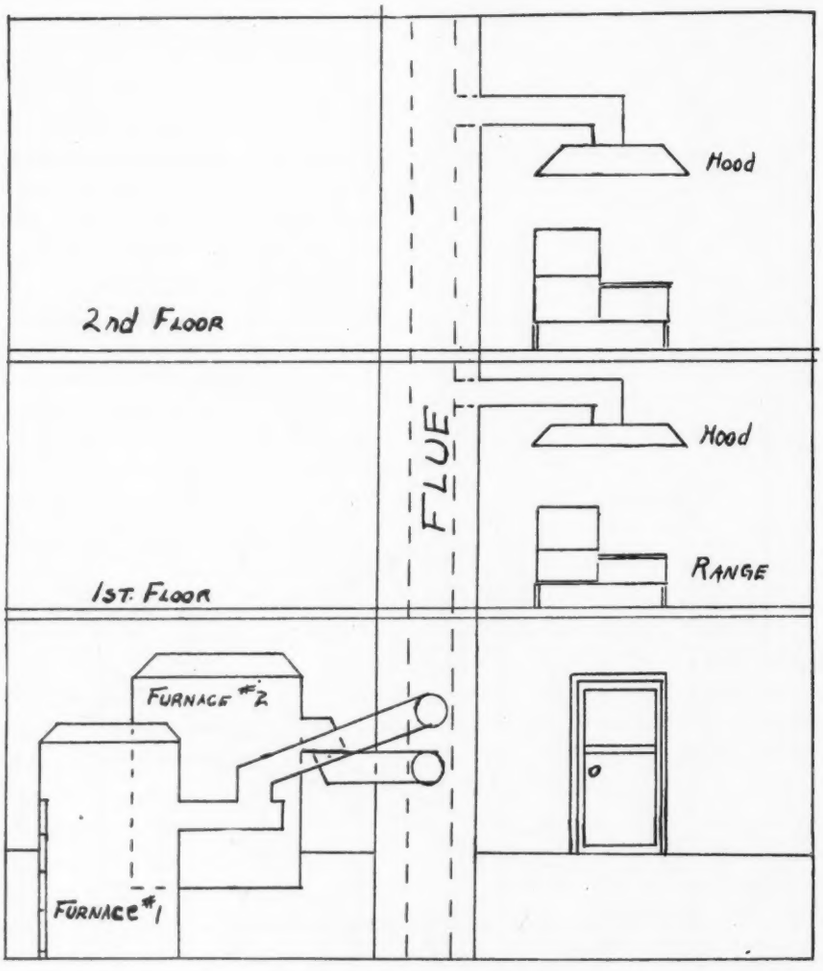
The furnaces were so set originally that the smoke pipe for the second floor furnace almost had to form a pretzel before it could get into the chimney. This was subsequently changed, but has not made any difference in the performance of the furnaces.

A second influence is the two gas ranges which have hoods for carrying off fumes. These hoods exhaust into the same flue as the furnaces do. There is no damper in the hood pipes to shut them off.

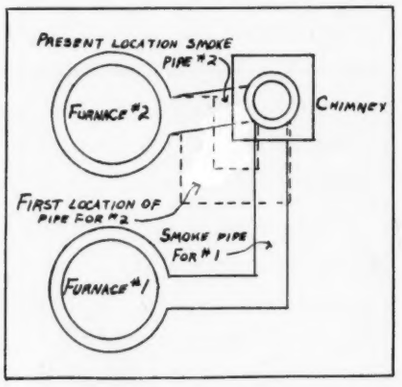
Whenever a furnace is fired, smoke travels up the chimney and into the apartments through the hoods over the ranges. At the same time the draft on the furnaces is never the same. One day the furnace for the first floor will have a heavy draft and the furnace for the second floor won't have any draft and the next day the drafts will be just the reverse.

Whenever one furnace has a good draft the other one seems to lose all draft. Both furnaces are the same size—24 inch firepot.

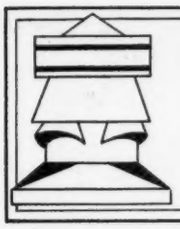
Here is a good chance for some of you boys to step up and tell us what you know about chimneys and drafts. *Send sketches.*



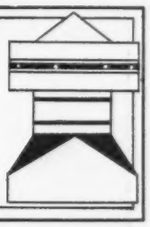
This is the arrangement of the furnaces and the kitchen stoves. The hoods connect into the same flue with the two furnaces. The two furnaces won't draw equally at the same time. Smoke also drives into the kitchens. How would you remedy this situation?



From above the two furnaces are placed like this. The drawing also shows the changed smoke pipe run for furnace Number 2



GRAVITY EXHAUST VENTILATION



Rationalism Is Best—Even in Ventilation

By **PAUL R. JORDAN***

LET me call your attention to the fact that the heading of this article says rationalism is best, not radicalism. Rationalism means common sense based on facts and figures, including the facts of science and the understood laws of nature as well as the facts of everyday experience.

It may sound like a truism so apparent as to need no stating, to say rationalism is best. But ventilation is a subject about which it is so easy to be flighty, that to some minds rationalism is not in keeping with the subject at all. Wild statements may be easily made. They sometimes seem to help to sell jobs. And it is an unfortunate fact that not one ventilating installation in a hundred is ever checked by an anemometer test. How many ventilating jobs have you ever known in your own experience that have ever been actually tested with an anemometer? Large heating jobs are often tested for flow of heat, but ventilating jobs are supposed to prove themselves in action.

Wild statements undoubtedly make it easier to sell one job, provided the salesman does not get caught; and inasmuch as his potential customer usually knows nothing about ventilation he feels that he can speak freely. But one sale doesn't build a business; and neither does one sale at a time. Real business is built on results, not on sales.

A good example of this can be found in a comparison between warm air furnaces and steam and hot water heating systems. As you know the warm air furnace installer in the past has made claims and guarantee out of keeping with his standards of engineering and installation. He has not been wholly to blame for this, inasmuch as some furnace manufacturers rate their furnaces to undersell their competitors rather than fairly so that their dealers will have a rational basis for laying out jobs. These methods have resulted in lots of sales, but they have not resulted in building a substantial business for the installer or a good reputation for warm air heating.

Steam and hot water, generally speaking, lay their stuff out rationally and on the basis of certain accepted tables. By so doing they have built for themselves a reputation of being preferable to warm air furnaces.

This reputation is based on rational business methods. That is apparent because warm air is unquestionably superior as a heating medium to either steam or hot water for reasons that you very well know. The Standard Code Committee has furnished a basis for rectifying this situation and the warm air furnace is gradually coming into its own through the application of rationalism.

Ventilation will have to go through the same period of adversity as the warm air furnace has, unless rationalism is applied to it by its friends. Rational statements as to its accomplishments; rational layouts; rational estimates.

The tendency on the part of the early ventilator manufacturers was to boost their ratings. Their tables were made for sales purposes and were not reliable. This custom is losing cast in favor of the growing tendency to make tables practical and usable. Nothing is gained by the use of too small a ventilator or too few of them. The owner wants results, the contractor wants business and the manufacturer wants a reputation for his product. Skimping thwarts all of these.

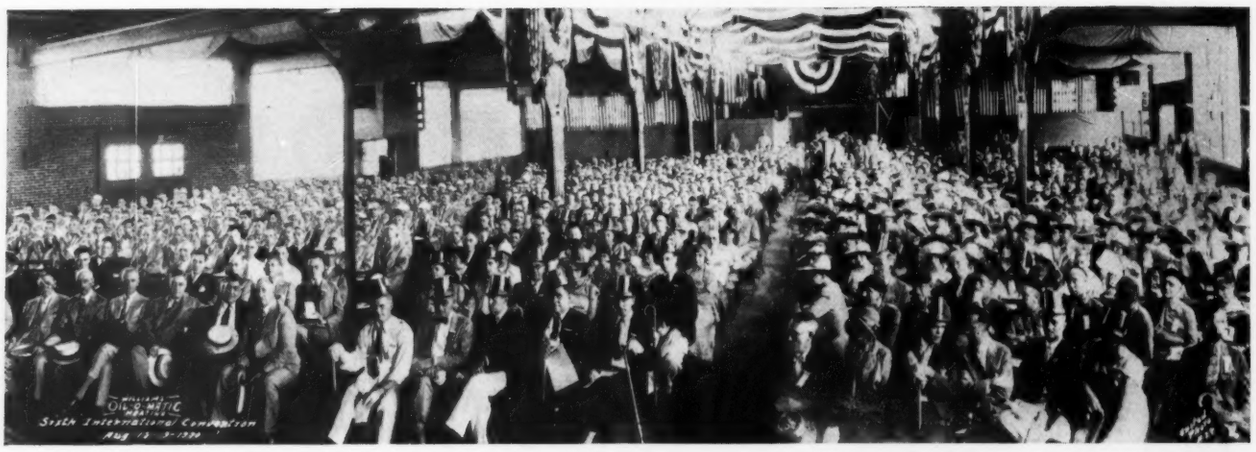
Extravagant claims, and wild statements sometimes do more harm than good. I know of one plant owner who was told by a fan salesman that his particular fan would separate the smoke from the air in his factory, expelling the smoke and leaving the air in. This plant owner related the incident to me with a keen appreciation of its element of humor. That particular fan salesman did not help himself much. But even if the extravagant statement were mild enough to pass muster, it still would not be good policy, because a substantial business is not built on deceiving the customer, and misstatement puts a handicap on the installer at the very start.

Estimates should be rational. Overhead should be figured and then a rational but not exorbitant profit added. Any business must be built up on profits, but an exorbitant profit hampers business development.

Rational ventilation demands the co-operation of ventilator manufacturers and also demands the use of a manufactured ventilator of recognized merit. It is not rational for the contractor to presume that his

(*Continued on page 45*)

**The Paul R. Jordan Company, Indianapolis, Ind.*



Oil-O-Matic Dealers Hold Convention

What is said to have been the largest crowd ever assembled for a commercial convention given by a single company jammed not only the factory buildings of the Williams Oil-O-Matic Heating Corporation but the city of Bloomington's hotels and private homes during this company's Sixth International Convention, August 18 and 19. An estimated 3,500 were in attendance and in spite of the heat and long sessions the convention hall was well filled at all times. Delegates came from every American state and Canadian province, from Cuba, the Argentine and even Australia.

The Warm Air Heating Industry in response to a special invitation showed up in great numbers. Many manufacturers of warm air heating equipment and accessories displayed their lines.

Many leading warm air heating contractors took advantage of this opportunity to learn first hand about the rapid development of oil burners in connection with modern warm air heating.

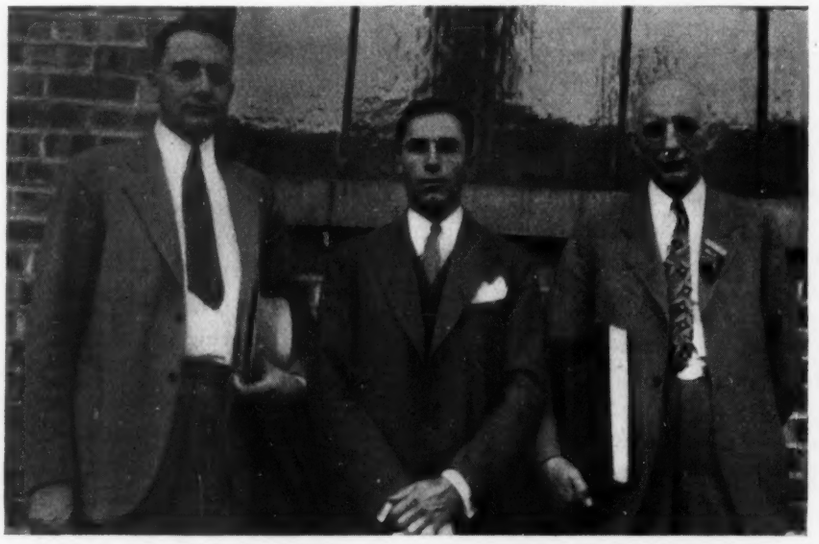
After a decade or so of more or less hesitancy on the part of both manufacturers and warm air heating contractors, the last few years has seen a joining of hands with mutual benefits. Improved burners and Standard Code warm air heating make it possible for the public to enjoy the unexcelled comforts of warm air heating plus automatic oil heating.

C. U. Williams, president, and W. W. Williams, vice-president, Williams Oil-O-Matic Heating Corp.

When Jack Stowell, special representative of the National Warm Air Heating Association, during his talk before this gathering, asked how many oil burner dealers present were also engaged in the warm air heating business, quite a good proportion of hands were raised.

George Harms, a member of the original Standard Code Committee of the National Warm Air Heating Association, briefly outlined the warm air heating industry's progress during the past twenty years and his satisfactory experience with oil burning.

Jack Stowell explained the Standard Code in detail and told the oil burner dealers how they can be sure of giving their customers complete satisfaction by co-operating with a Standard Code warm air heating contractor on every installation of



F. E. Mehrings, Jack Stowell and George Harms

Some of the warm air heating equipment exhibited at the Williams Oil-O-Matic factory during the convention

an oil burner in a warm air furnace.

Most of the features and talks during the two days were designed to present vivid sales ideas to Oil-O-Matic dealers. A new improvement in the Oil-O-Matic, the Diffuser, which makes the burner operate more quietly, was a feature announcement and demonstration.

Merely to list the names of the speakers would take columns—suffice to say the program was crammed with superlative selling ideas. An important talk on deferred payments was made by A. H. Rosenberg, president of the Mercantile Discount Corporation. Mr. Rosenberg explained the Williams time payment plan.

The second afternoon session was pleasantly opened by four professionally staged acts which depicted how newspaper, magazine, outdoor and radio advertising attract the favorable attention of the average family. The characters were skillfully played by professional actors and actresses. There were plenty of laughs.

The radio skit faded from a family living room to a broadcasting studio, where Sen Kaney, announcer, and Joseph Koestner, director, conducted a program exactly as they do over a nation-wide chain of stations each Sunday evening.

C. U. Williams and his son, W. W. Williams, the inventor of the Oil-O-Matic, were either on the platform or in the audience mingling with the dealers at all times.

R. D. Marshall, the master of ceremonies and an indefatigable and brilliant worker, ran the sessions without a hitch. Daytime was work time and nighttime was playtime, so watersports and dancing occupied the delegates' time at the Lakeside Country Club, Monday evening, and Tuesday evening at the big banquet the guests were treated to a stirring and interesting talk by Branch Rickey of the St. Louis Cardinals baseball team. Following the banquet, another dance was held, this time on the more spacious floor of one of the factory buildings.

For two days following the convention many Oil-O-Matic dealers stayed in Bloomington to attend the factory courses of instruction on the mechanics and installation of Oil-O-Matic burners.

REVAMPED FURNACE

(Continued from page 31)

problems in this heating system was the elimination of dust and dirt. The air coming into the mixing chamber is drawn through oil filters by the fan. These filters take out all dust and pass on to the furnace only cleaned air. The owners say that they have not had a moment's trouble with dust.

The fan and the burner are connected in series. The burner operates all during the working hours and runs full speed all the time. The fan is connected into the system so that it, too, runs all the time the burner is on. The result is that the burner and the fan are going all the time the employees are in the building.

The system has proved very satisfactory. In this job the upper two floors of the building are not used, but had they been it would have been a simple matter to take a lead up to these floors as they do not have a large floor area.

FAN FUNDAMENTALS

(Continued from page 36)

operating by gravity and in the smaller sizes the tip speed even at 1750 R.P.M. is not sufficient to cause trouble.

In fans of this type as in all propeller fans, slight variations in the shape of the blades have a surprising effect on quietness of operation for which reason the heating contractor should give any fan with which he is not already familiar, a careful try-out before installing it on a job.

RATIONALISM IN VENTILATION

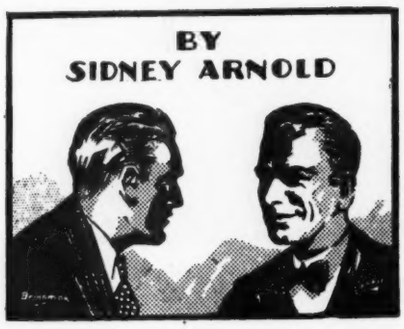
(Continued from page 43)

experience has been wide enough to warrant him in going it alone. He may have had considerable experience, but the added experience of the manufacturer is of definite value.

It is not rational for the contractor to feel that he can make ventilators as well as he can buy them. He cannot compete with the manufacturer on the basis of price, quality or design, and these three elements are quite necessary in the building of ventilation business.

Ventilation is in its infancy. It has a long way to go and many friends to go with it. Let us hope that these friends will demonstrate valuable friendship by dealing with it rationally, so that it may enjoy a progressive growth in which its friends may share the profits.

RANDOM NOTES AND SKETCHES



I was talking the other week with one of the best known heating men in the middle west. He said he was making more money than ever before. I said I didn't see how it was possible.

"My case is like that of the old-timer," he said. "Just look at these books. See how during the last few years my sales of units have been falling steadily and my income has been going down with it.

"But just look at the middle of last year and through these items so far this year. Over here you can see that if 1930 continues as it has for the first half I will sell just about one-half as many units as I did in 1928, and fewer than I did in 1929.

"You may not believe me, but I'm really not a bit worried, but in fact am gratified. Why? Because this column of figures over here shows that my income from those sales this year is going to amount to about three times my income for 1928 and about twice the income in 1929. And the beautiful part of it is that the percentage of profit is about twice as high as it has ever been.

"The reason for this phenomenon?

"I'm not selling furnaces any more. No, sir. Today I'm selling heating plants, and any man who gets me on his trail is not going to buy a furnace, but he's going to buy every attachment and control I can put on that furnace. Yes, and it works 100 per cent, too. You would be surprised how the customer likes this better type of installation. You don't have to believe me, just look at the books."

Ladies, Ladies!

"What shall I do? I'm engaged to a man who says he simply can't bear children."

"Well, you can't expect too much from a husband."

* * *

The boys over in Michigan not only work together but play together. The other day my phone tingled and the operator said, "Grand Rapids calling you," and when Grand Rapids was ready, I found myself talking to my friend Al Nydam.

"A bunch of us fellows are coming to Chicago to see the Cubs-Giants ball game tomorrow and we want you to reserve five tickets."

Well, we always try to please but right now tickets for the Cubs games go quicker than hot cakes. The tickets were procured, however, and the next morning per schedule the boys called at the Artisan office in a body to pay us all a visit and to pick up the coveted duckets.

"We saw your page inviting visitors so we thought we'd go you one better," Al smilingly remarked as he entered.

We wonder how Grand Rapids got along that day as practically the entire local association membership made the trip.

The ball fans were C. B. Herrendeen, president; Al Nydam, secretary; Geo. Vander Molen and Martin Ver Marris.

The other member of the party should not be mentioned as they did not see fit to visit us or go to the ball game which proved to be a great game with the Cubs winning, of course. However, we know that they were busy taking in some of Chicago's many attractions so we'll forgive them this time. Here they are — Ike Lammers, Ed Dyksterhouse, Henry Schaafsman, Henry Delney, treasurer, and Harry Overbeek. John Swett was to be in the party also but John recently bought a country home and his chore boy quit unexpectedly, so John had to stay at home to milk the cow.

Of course Harry Rhodes wanted to join the party, but he had previously made an important date with Tom Pearson so he had to stay home also. Just so Frank Ederle and the other boys throughout the state won't worry about whether or not their Grand Rapids friends got home safely, I might add that as I write this, a letter comes to my desk from Al in which he says everybody had a great time in Chicago.

* * *

A Literal-Minded Steno

A new clerk dictating a few days ago, was in doubt as to the use of a certain phrase, so he said to the stenographer: "Do you retire a loan?"—and the wistful-eyed one replied rather sleepily:

"No, I sleep with mamma."

"Wilder" Galvanized Pipe and Elbows

From John Balkema, 104 Main Street, Lafayette, Indiana.

Please tell me who makes "Wilder" galvanized pipe and elbow.

Ans.—Wilder Metal Company, Niles, Ohio.

"Furman" Sectional Boiler

From Walter A. Sargent, 619 Court Street, Pekin, Illinois.

Can you tell me who makes the "Furman" sectional boiler?

Ans.—This boiler was made some years ago in Geneva, New York, and later taken over by the United States Radiator Corporation, who discontinued manufacturing it. However, repairs may be secured from the United States Radiator Corporation, 228 North LaSalle Street, Chicago.

Brass Name Plates

From a Subscriber.

Please tell me who makes brass name plates.

Ans.—General Etching and Manufacturing Company, 3070 West Grand Avenue; Etching Company of America, 1520 Montana Street; C. H. Hanson Company, 305 West Erie Street, and Stanley Manufacturing Company, 64 West Randolph Street; all of Chicago.

Address of National Foundry Company

From E. C. Stocker, 211 Main Street, Columbia, South Carolina.

I should like to know where the National Foundry Company is located.

Ans.—Dayton, Ohio.

"Eclipse" Maroon Roofing Paint

From C. A. Whitecraft, Le Roy, Illinois.

Please tell me who makes "Eclipse" Maroon Roofing Paint.

Ans.—Elliott Varnish Company, 4523 Fifth Avenue, Chicago, Illinois.

Who Took Over Marshalltown Heater Company?

From Guy E. Orton, the Rybolt Furnace Company, 118 Mills Street, Wadsworth, Ohio.

Can you tell me who took over the equipment of the Marshalltown Heater Company of Marshalltown, Iowa?

Ans.—The Midland Furnace Company, Columbus, Ohio.

Cast Iron Smoke Pipe

From Heating and Ventilating, 521 Fifth Avenue, New York City.

From the Goettl Brothers Company, 248-250 North Mulberry Street, Mansfield, Ohio.

We would like to know who makes cast iron smoke pipe.

Ans.—Waterloo Register Company, Waterloo, Iowa, and The Faultless Castings Company, Greencastle, Indiana.

"Diamond Special" Lawn Mower

From James A. Black Hardware Company, 3200 East 92nd Street, South Chicago, Illinois.

Please tell me who makes the "Diamond Special" lawn mower.

Ans.—Dillie & McGuire Manufacturing Company, Richmond, Indiana.

Address of Champion Manufacturing Company

From Haslett Furnace Company, 1761-63-65 High Street, S., Columbus, Ohio.

Can you furnish us with the address of the Champion Bolt Company of Chicago?

Ans.—This concern is known as the Champion Manufacturing Company, 7332 Kimbark Avenue.

"Hercules" Shears and Rod Cutters

From I. L. Shuemaker, 1703 Washington Avenue, Cairo, Illinois.

Please tell me who makes the "Hercules" shears and rod cutter.

Ans.—W. W. & C. F. Tucker, Incorporated, Hartford, Connecticut.

Steel Garages

From Robert J. Reichenback, 1308 Marsac Street, Bay City, Michigan.

Please give me the names and addresses of manufacturers of steel garages.

Ans.—Martin Steel Products Company, Mansfield, Ohio; Milcor Steel Company, Milwaukee, Wisconsin; Thomas and Armstrong Company, London, Ohio; Trachte Brothers Company, Madison, Wisconsin; Western Steel Products Company, Duluth, Minnesota, and Stefco Steel Company, Michigan City, Indiana.

"Grand Crown" Combination Range

From John T. Bramhall, 3002 Wesley Avenue, Berwyn, Illinois.

Can you tell me who manufactures the combination coal and gas range called "Grand Crown"?

Ans.—Crown Stove Works, 4631 West 12th Place, Cicero, Illinois.

Repairs for "Patric" Furnace

From R. J. Evans, 219 Kretizer Avenue, Bloomington, Illinois.

Kindly advise me where I can secure repairs for the "Patric" furnace.

Ans.—Niehaus Furnace Repair Company, Cincinnati, Ohio, and Northwestern Stove Repair Company, 654 West Roosevelt Road, Chicago.

OVERHEAD EXPENSE

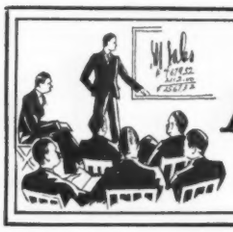
(Continued from page 39)

20% Material Cost (for this job only)	40.00
40% Labor Cost (for this job only)	80.00
100% or	$200.00

Note

Regardless of what profit you desire to make on sales price, deduct the amount or percentage of profit desired from 100 and divide the cost of your job by the figures remaining and it will give you the sales price, which as you will see provides for material, labor, overhead expense and profit as shown above.

We have arbitrarily used 20% for profit in this problem because of its being easier to figure.



ASSOCIATION ACTIVITIES

Philadelphia Association Begins Enrollment of Saturday Morning School

The training of future warm air heating and sheet metal men is one of the phases of association work which is attracting more and more attention. The Philadelphia association is inviting interested beginners and also advanced and practical men to attend a new series of instruction classes.

This school hour will provide an unusual feature of four hours' work in daytime, and will have the best instructors obtainable, all practical men who are working at the trade. The terms are two dollars ($2.00) laboratory fee and one dollar ($1.00) admission. The one dollar ($1.00) to be returned if 70 per cent of the sessions are attended. The term will consist of 36 weeks of training. Apprentice and mechanics' classes will be formed.

The class will meet on each Saturday from 8 a. m. to 12 noon.

The instructors have been chosen from experienced sheet metal mechanics who have been trained to teach the entire course; drafting, layout, and fabrication.

This splendid opportunity to study in daylight is open to apprentice, mechanic, helper and even employers. Four hours each Saturday morning.

Strict rules have been made and will be enforced. Everyone must be present at 8 a. m. sharp. Reports will be made to the employer concerning lateness or absence. Those who are not regular will be dropped.

Class starts early in September.

Ohio Jobbers and Salesman's Auxiliary Publish 1930-1931 Roster

The Jobbers' and Salesman's Auxiliary of the Ohio Sheet Metal Contractors' Association are now mailing out their 1930-1931 Roster. The Roster is printed on a heavy card and is arranged according to business classification.

The officers of the auxiliary are:

Officers

D. A. Hossler, president. Care of J. M. & L. A. Osborn Co., 1541 East 38th St., Cleveland, Ohio.

Geo. G. Auer, 1st vice-president. Core of Auer Register Co., Cleveland, Ohio.

A. K. Anderson, 2nd vice-president. Care of Anderson & Krapp, Toledo, Ohio.

Lee W. Gillespie, secretary-treasurer. Care of The Ferdinand Dieckmann Co., Cincinnati, Ohio.

C. T. McGough, sergeant-at-arms. Care of Wheeling Corrugating Company, Wheeling W. Va.

Directors

S. A. Schwarz, 1517 East Boulevard, Cleveland, Ohio.

E. W. Norman. Care of Taunton-New Bedford Copper Co., New Bedford, Mass.

A. W. Fromm. Care of Vorys Brothers, Inc., Columbus, Ohio.

S. E. Kidd. Care of Columbus Slate Co., Cincinnati, Ohio.

Joe Coughlin. Care of F. O. Schoedinger, Columbus, Ohio.

F. W. Beach. Care of Lennox Furnace Co., Syracuse, N. Y.

Publicity Committee

Miss E. Cohn. Care of AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

E. C. Carter. Care of Furnaces and Sheet Metals, 64 W. Randolph St., Chicago, Ill.

Kansas City Associations Have Co-operative Meeting with Jack Stowell as Speaker

On August 15 more than 100 members of the Kansas City Sheet Metal Contractors' Association and the Kansas City Warm Air Heating Furnace Dealers' Association met with some 25 representatives of the Kansas City Coal Dealers' Institute.

The meeting was featured by an address of Jack Stowell, special representative of the National Warm Air Heating Association. The boys in Kansas City report that they have never had such a good meeting and so interesting a speaker as Jack. Jack spoke on Advertising and Merchandising.

The meeting was held in the Pla-Mor Ball Room. After the meeting the members adjourned to Gus Werner's shop for a lunch.

W. T. Millis, of the Security Stove and Manufacturing Co., introduced Mr. Stowell as no one else could do. Mr. Millis was preceded by Mr. Lewis of the Coal Institute, and Mr. Lester Johnson, president of the Furnace Dealers' Association.

Sheet Metal Protective Association of St. Louis Holds Annual Picnic

The Sheet Metal Protective Association of St. Louis will hold their annual picnic at the Ferguson Country Club, Ferguson, Missouri, all day Sunday, September 7th.

The annual ball game between the Tinners and the Salesmen will again feature the program. Horse shoe games and races will also be staged. There will be valuable prizes given and the ladies will hold bunco parties

THESE TWO HELPERS WORK WITHOUT PAY!

Send for these free books

NEW developments in materials and methods of construction during the last few years have given rise to many questions concerning proper sheeting practice under various conditions. To help you deliver your usual first-class job when confronted by unexpected difficulties is the purpose of these two authoritative books.

"Copper Roofings" and "Copper Flashings" fully illustrate and explain the correct application of copper for roofings, flashings and roof drainage installations. They are sent free to sheet metal contractors. Write for your copies today.

COPPER & BRASS
RESEARCH ASSOCIATION
25 Broadway, New York

Midwestern Office	*Southern Office*	*Canadian Office*	*Pacific Coast Office*
Builders Building	Shoreham Building	67 Yonge Street	Architects Building
Chicago, Ill.	Washington, D. C.	Toronto, Canada	Los Angeles, Calif.

NEW ITEMS *and* NEWS ITEMS
From and about the Manufacturers and Jobbers

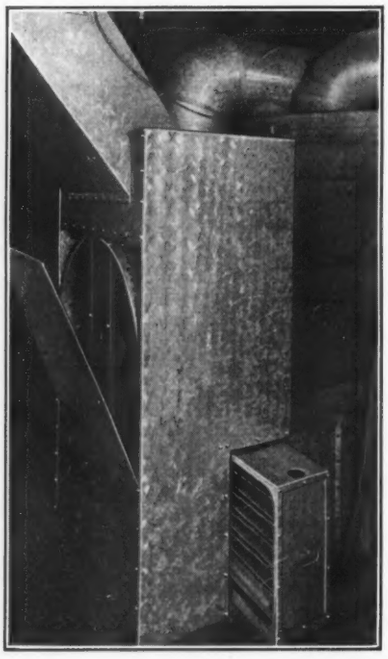
Watt Mfg. Co.
Announces New Unit,
the Furnace Korectaire

The Watt Manufacturing Company, Sterling, Illinois, is now manufacturing an air conditioning unit known as the Korectaire. The new unit is designed to be attached to any furnace, converting the heater into an air conditioning system.

This new unit brings to homes—humidity, health, circulation, cleanliness and comfort, placed in the home subject to the press of a button or a furnacestat control.

Korectaire, says the manufacturer, means:

An even temperature will be maintained in every room.



The proper amount of humidity necessary for health, comfort, and plant life will be automatically delivered at all times.

An even temperature will be maintained between floor and ceiling resulting in health, comfort, efficiency and fuel saving.

The humidifying unit humidifies and purifies air by constantly passing the air over cold water.

The plates are made of rust-resisting metal covered with highly absorbent material, and arranged so that the water supplied at the top must pass over all the plates and is cleaned and humidified.

Has 20 sq. ft. of humidifying surface capable of evaporating up to 15 gallons of water in 24 hours depending on conditions of air and fan speed.

Has 40 sq. ft. of dust collecting surface. Soot and fine dusts collect on under side of plates. Dust collection does not retard air flow.

Requires cleaning from six to twelve times yearly depending on air conditions.

The fan is positive-pressure, multi-blade, blower type which insures high efficiency at low speed.

The unit has a large gravity flow—432 inches.

Combustioneer, Inc.,
Introduces New Domestic
Stokers at 1930 Convention

Two new models of automatic stokers, now being manufactured by Combustioneer, Inc., of Goshen, constituted the surprise which it was announced some time ago would be sprung at the 1930 dealers' convention held June 27 and 28 at the Spink-Wawasee Hotel and Country Club, Wawasee.

The newcomers in the stoker field, both of which have been constructed for the home owner, are the Furnastender, listed at $195.00 f.o.b. factory, an overfeed stoker, and the Furnastoker, listed at $295.00 f.o.b. factory, an underfeed type. The former can be used in any furnace with no other installation cost than that of connecting the machine to the electric power. The latter, however, will need some changes to be made in the furnace itself in addition to the power connection before it can be placed in operation.

In both types, very little attention is necessary to keep them in perfect operation. In the morning and evening only, coal is shoveled into the hoppers and that is all, the machines then take care of themselves, being automatically regulated to keep steady heat at all times. The coal on feeding through the mouth of the hopper is crushed by shearing plates and carried by means of a worm-feed to the retort where the fuel is evenly distributed so as to get the greatest possible heat with the maximum of efficiency. In the home types, very little power is necessary to operate the stokers and so only a small home-type electric motor is used, thus keeping the power cost at a very low figure.

Minneapolis-Honeywell
to Sponsor 13-Week
National Radio Program

The Minneapolis-Honeywell Regulator Company will sponsor a thirteen week radio program by the Minneapolis Symphony Orchestra over the Columbia Broadcasting System of twenty-two stations. The first of these weekly broadcasts will commence on Monday, September 8th. This orchestra, under the direction of the celebrated conductor, Henri Verbrugghen, is one of the leading American symphonies. In addition to their regular concerts in Minneapolis, they have been enthusiastically received by music lovers in the cities visited in their annual tours.

A TYPICAL INSTALLATION OF HYRO UNXLD DAMPER QUADRANTS

THE illustration above shows the furnace recently installed by the Thomas S. Woodard Company of Rochester, N. Y., for the Balta Bakery of that city. This is a Follansbee Fresh-Air Furnace Heating System, consisting of two thirty-inch Follansbee Furnaces and a Furn-O-Fan, with automatic control and distributing duct systems. Two of the Hyro UNXLD Damper Quadrants used in this installation are clearly visible.

This installation is typical. Hyro UNXLD Damper Quadrants *belong* on every good heating or ventilating job and that is why sheet metal men everywhere *insist* on them. True, the damper quadrants may be only a minor item in the whole installation; but it is attention to such little things that makes a job really *good*. UNXLD damper quadrants are designed and made *right*. They do the work, go on easily—and *stay on*. For prices and sizes (to fit any job) clip and mail coupon below.

THIS IS THE HYRO UNXLD DAMPER QUADRANT—Patented Dec. 23, 1919. No. 1,326,096

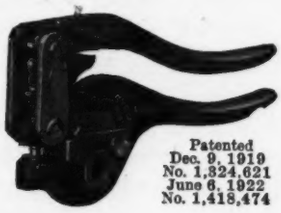
Hyro also makes a complete line of other damper accessories

HYRO MFG. CO., Inc.

202 VARICK STREET, NEW YORK CITY

OTHER HYRO PRODUCTS

NO. O.X. METAL PUNCH



Patented
Dec. 9, 1919
No. 1,324,621
June 6, 1922
No. 1,418,474

This is the most powerful small hand metal punch on the market today for use on 14 gauge sheet metal or lighter. Measures 8" overall and weighs only 2⅝ lbs.

SHUR-GRIP SOLDER IRON HANDLE

Patented
April 24, 1923—No. 1,453,082

This is the *different* solder iron handle—the one that doesn't come off or char. The Shur-Grip cuts its own thread right into the stem of the solder iron. It can be unscrewed—but never pulled off. An air vent through the entire handle prevents scorching. The Shur-Grip will outlast several solder irons.

8-30-2

HYRO MFG. CO., Inc.,
202 Varick Street, New York City.

Please send me full information and prices on:

(please check)

Damper Accessories ☐ Shur-Grip Solder Iron Handles ☐
Metal Punches ☐ All Products ☐

NAME.....

ADDRESS.....

CITY.....STATE.....

Mention AMERICAN ARTISAN in your reply—Thank you!

~ MARKET QUOTATIONS ~

AMERICAN ARTISAN is the only publication quoting Prices on Metals, Sheet Metal Equipment and Supplies, Warm Air Heating Supplies and Accessories, corrected bi-weekly. These quotations are not guaranteed but are obtained from reliable sources and reflect nation-wide market conditions at the time of going to press.

NOTE—These prices are Chicago Warehouse Prices to which must be added territory differentials

METALS

PIG IRON

Chicago Fdy., No. 2	$17.50
Southern Fdy. No. 2	18.01
Lake Superior Charcoal	27.04
Malleable	17.50

FIRST QUALITY BRIGHT CHARCOAL TIN PLATES

IC	20x28 112 sheets	$22.50
IX	20x28	25.50
IXX	20x28 56 sheets	14.50
IXXX	20x28	15.50
IXXXX	20x28	17.00

TERNE PLATES

	Per Box
IC 20x28, 40-lb. 112 sheets	$24.00
IX 20x28, 40-lb. 112 sheets	26.50
IC 20x28, 25-lb. 112 sheets	20.50
IX 20x28, 25-lb. 112 sheets	23.50
IC 20x28, 20-lb. 112 sheets	19.00
IV 20x28, 20-lb. 112 sheets	22.00

"ARMCO" INGOT IRON PLATES

No. 8 ga.—110 lbs.	$4.15
3/16 in.—100 lbs.	4.05
¼ in.—100 lbs.	3.85

COKE PLATES

Cokes, 80 lbs., base, 20x28	$12.00
Cokes, 90 lbs., base, 20x28	12.20
Cokes, 100 lbs., base, 20x28	13.75
Cokes, 107 lbs., base, IC, 20x28	12.75
Cokes, 135 lbs., base, IX, 20x28	14.75
Cokes, 155 lbs., base, 2X, 56 sheets	8.50
Cokes, 175 lbs., base, 3X, 56 sheets	9.35
Cokes, 195 lbs., base, 4X, 56 sheets	10.25

BLUE ANNEALED SHEETS

Base 10 ga. per 100 lbs.	$3.35
"Armco" 10 ga. per 100 lbs.	4.15

ONE PASS COLD ROLLED BLACK

No. 18-20 per 100 lbs.	$3.75
No. 22 per 100 lbs.	3.70
No. 24 per 100 lbs.	3.75
No. 26 per 100 lbs.	3.85
No. 27 per 100 lbs.	3.90
No. 28 per 100 lbs.	4.00

GALVANIZED

No. 16 per 100 lbs.	$3.85
No. 18 per 100 lbs.	3.95
No. 20 per 100 lbs.	4.15
No. 22 per 100 lbs.	4.20
(Standard differentials on extras to apply)	
No. 24 per 100 lbs.	$4.35
No. 26 per 100 lbs.	4.60
No. 27 per 100 lbs.	4.70
No. 28 per 100 lbs.	4.85
"Armco" 24 per 100 lbs.	5.95

BAR SOLDER

Warranted 50-50 per 100 lbs.	$21.05
45-55 per 100 lbs.	19.75
48-52 per 100 lbs.	20.05
Plumbers' per 100 lbs.	17.40

ZINC

In Slabs	$5.50

SHEET ZINC

Cask Lots (600 lbs.)	$12.00
Sheet Lots (100 lbs.)	13.00

BRASS

Sheets, Chicago base	17 ¾c
Tubing, brazed, Chicago base	25 ¾c
Tubing, seamless, Chicago base	22 ¾
Wire, Chicago base	18 ¾c
Rods, Chicago base	16 ½c

COPPER

Sheets, Chicago base	20 ¾c
Tubing, seamless, Chicago base	23 c
Wire, plain rd., 8 B. & S. Ga. and heavier	13 ½c

LEAD

American Pig	$6.50
Bar	8.50

TIN

Bar Tin per 100 lbs.	$39.00
Pig Tin per 100 lbs.	38.00

SHEET METAL SUPPLIES, WARM AIR FURNACE FITTINGS AND ACCESSORIES

ASBESTOS

Paper up to 1/16	6c per lb.
Roll board	7 ½c per lb.
Mill board 3/32 to ⅛	7 ½c per lb.
Corrugated paper (250 sq. ft. per roll)	$6.00 per roll

ASBESTOS SEGMENTS

8 in. per 100 sets	$7.30
9 in. per 100 sets	8.30
10 in. per 100 sets	9.30
12 in. per 100 sets	10.50

CEMENT FURNACE

American Seal, 5-lb. cans, net	$0.40
American Seal, 10-lb. cans, net	0.80
American Seal, 25-lb. cans, net	2.00
Pecora per 100 lbs.	7.50

CLIPS

Damper

No-Rvet Steel, with tail pieces, per gross	$9.50
Rivet Steel, with tail pieces, per gross	7.50
Tail pieces, per gross	2.40

COPPER FOOTING

Copper Footing	36 %

CORNICE BRAKES

Chicago Steel Bending

Nos. 1 to 6B	Net

CUT-OFFS

Cal., plain, round or cor. rd.

26 gauge	30 %
28 gauge	35 %

DAMPERS

Yankee Hot Air

7 inch, doz.	$1.60
8 inch, doz.	2.20
9 inch, doz.	2.60
10 inch, doz.	2.80
12 inch, doz.	3.50
14 inch, doz.	5.00

EAVES TROUGH

Galv. Crimpedge, crated	75-10 %
Zinc, "Barnes"	60 %

ELBOWS

Conductor Pipe

Galv. plain or corrugated, round flat Crimp.

28 gauge	60 %
26 gauge	45 %
24 gauge	15 %

Galv. Terne Steel

Plain Rd. and Rd. Corr.

28 gauge	60 %
26 gauge	45 %
24 gauge	15 %

Square Corrugated

28 gauge	50 %
26 gauge	35 %

Portico Elbows

Standard Gauge Conductor Pipe, plain or corrugated.

Not nested	70 & 5 %
Nested solid	70 & 5 %

Sq. Corr., A. & B. & Octagon

28 gauge	50 %
26 gauge	35 %

Portico

1, 1¼, 1½ inch	45 %

Copper

16 oz. all designs	45 %

Zinc

All styles	60 %

ELBOWS—Stove Pipe

1-piece Corrugated, Uniform Blue "Milcor" No. 28 Gauge.

	Doz.
5 inch	$1.15
6 inch	1.25
7 inch	1.75

Adjustable—Uniform Blue

"Milcor" No. 28 Gauge, Uniform Blue.

5 inch	$1.60
6 inch	1.75
7 inch	2.10

WOOD FACES—60 % off list.

FIRE POTS

Geo. W. Diener Mfg. Co.

	Each
No. 02 Gasoline Torch, 1 qt.	$5.13
No. 9250, Kerosene, or Gasoline Torch, 1 qt.	6.50
No. 10 Tinner's Furnace Square tank, 1 gal.	11.20
No. 15 Tinner's Furnace Round tank, 1 gal.	10.70
No. 21 Gas Soldering Furnace	8.00
No. 110 Automatic Gas Soldering Furnace	10.50

GLASS

Single and Double Strength, A, all brackets	85 %
Single and Double Strength, B, all brackets	87 %

HANGERS

Conductor Pipe

Milcor Perfection Wire	25 %
Milcor Triplex Wire	10 %

Eaves Trough

Milcor Steel (galv. after forming) from list	45 %
Milcor Selflock E. T. Wire, List	10 %

HOOKS

Conductor

"Direct Drive" Wrought Iron for wood or brick	15 %

MITRES

Galvanized Steel Mitres

28 gauge	70
26 gauge	60-20

PASTE

Asbestos Dry Paste

200-lb. barrel	$15.00
100-lb. barrel	7.75
50-lb. pail	4.50
25-lb. pail	2.50
10-lb. bag	1.20
5-lb. bag	0.60

PIPE

Galvanized

Crated and nested (all gauges)	75-7½ %
Crated and not nested (all gauges)	75-2½ %

Furnace Pipe

Double Wall Pipe and Fittings	60 %
Single Wall Pipe, Round Galvanized Pipe	60 %
Galvanized and Tin Fittings	60 %

Lead

Per 100 lbs.	$12.50

Stove Pipe

"Milcor" "Titelock" Uniform Blue Stove	
28 gauge, 5 inch U. C. nested	$11.00
28 gauge, 6 inch U. C. nested	12.00
28 gauge, 7 inch U. C. nested	14.00
30 gauge, 5 inch U. C. nested	10.25
30 gauge, 6 inch U. C. nested	11.00
30 gauge, 7 inch U. C. nested	13.00

T-Joint Made Up

6 inch, 28 ga. per doz.	$3.40

REGISTERS AND FACES

Floor Registers

Except Cast Iron	40 & 10 %
Cast Iron	20 %

Baseboard

2-Piece	40 & 10 %
1-Piece	40-10 & 20 %

Adjustable Ventilators

Adjustable Cold Air Faces	40 & 10 %
Adjustable Ventilators	40 & 10 %

RIDGE ROLL

Galv. Plain Ridge Roll, b'dld	75-15-5 %
Galv., Plain Ridge Roll, crated	75-15 %

SCREWS

Sheet Metal

7, ½ x ½, per gross	$0.52
No. 10, ¾ x 3/16, per gross	0.68
No. 14, ⅞ x ¼, per gross	0.83

SHEARS, TINNERS' AND MACHINISTS'

Viking	$22.00

Lennox Throatless

No. 18	35 %
Shear blades (f. o. b. Marshalltown, Iowa.)	10 %

SHOES

Galv. 28 Gauge, Plain or Corrugated, round flat crimp	60 %
26 gauge, round flat crimp	45 %
24 gauge, round flat crimp	15 %

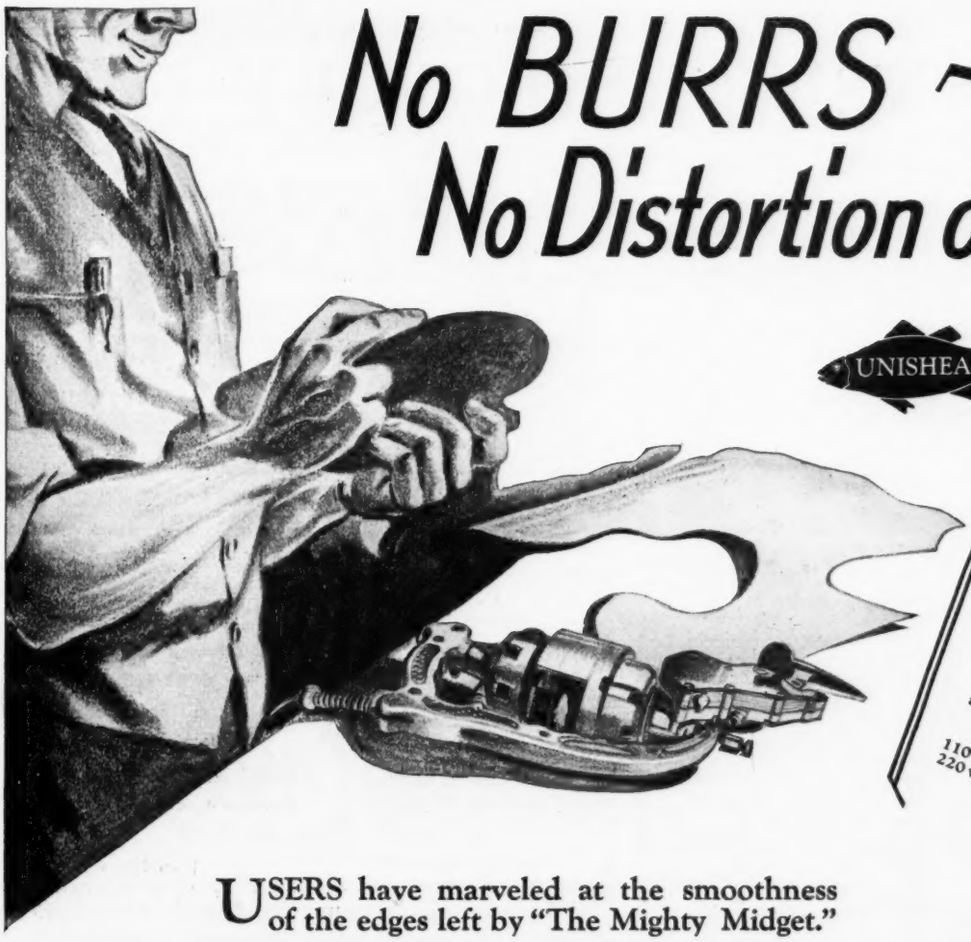
SNIPS, TINNERS'

Milcor	Net

VENTILATORS

Standard	30 to 40 %
Milcor	Net

No BURRS — — No Distortion of Metal



STANLEY-UNISHEAR "Mighty Midget" will cut sheet iron up to No. 18 U. S. gauge (.050"). Other metals in proportion.

PRICE
110 volt motor $75.00
220 volt motor $78.00

USERS have marveled at the smoothness of the edges left by "The Mighty Midget."

And a speed of 15 feet a minute — who wouldn't be well pleased with this time and labor saver? You can't "stick" it with odd shapes either. "The Mighty Midget" will cut curves, angles and notches as easily as straight cuts. A minimum working radius of 1″ permits it to handle practically everything.

Don't waste your time with old fashioned equipment. Let us show you the advantages of "The Mighty Midget." Other Stanley-Unishear models cut up to ¼″ boiler plate.

Send for full information

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Meyer & Bro. Co., F., Peoria, Ill.
Warm Air Furnace Fan Co., Cleveland, Ohio
Watt Mfg. Co., Sterling, Ill.

Air Washers
A. Gehri & Co., Tacoma, Wash.
Watt Mfg. Co., Sterling, Ill.

Aluminum Sheets
J. M. & L. A. Osborn Co., Cleveland, Ohio

Bearings
Fafnir Bearing Co., New Britain, Conn.

Blast Gates
Berger Bros. Co., Philadelphia, Pa.

Blower Bearings
Fafnir Bearing Co., New Britain, Conn.

Blowers—Furnace
American Machine Products Co., Marshalltown, Iowa
A. Gehri & Co., Tacoma, Wash.
Brundage Co., Kalamazoo, Mich.
Lakeside Co., Hermansville, Mich.
Warm Air Furnace Fan Co., Cleveland, Ohio

Bolts—Stove
Lamson & Sessions Co., Cleveland, Ohio
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

Brakes—Bending
Dreis & Krump Mfg. Co., Chicago, Ill.
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

Brakes—Cornice
Dreis & Krump Mfg. Co., Chicago, Ill.

Brass and Copper
American Brass Co., Waterbury, Conn.
Chase Brass & Copper Co., Waterbury, Conn.
Copper & Brass Research Association, New York, N. Y.
Revere Copper & Brass, Rome, N. Y.

Bronze
Revere Copper & Brass, Rome, N. Y.

Cans—Garbage
Diener Mfg. Co., G. W., Chicago, Ill.
Osborn Co., The J. M. & L. A., Cleveland, Ohio

Castings—Malleable
Fanner Mfg. Co., Cleveland, Ohio

Ceilings—Metal
Milcor Steel Co., Mil., Canton, Chgo., La Crosse, K. C.

Chaplets
Fanner Mfg. Co., Cleveland, Ohio

Cleaners—Vacuum
Brillion Furnace Co., Brillion, Wis.
National Super Service Co., Toledo, Ohio

Copper
American Brass Co., Waterbury, Conn.
Chase Brass & Copper Co., Waterbury, Conn.
Revere Copper & Brass, Rome, N. Y.
Rockford Sheet Steel Co., Rockford, Ill.

Cornices
Milcor Steel Co., Mil., Canton, Chgo., La Crosse, K. C.

Cut-offs—Rain Water
Milcor Steel Co., Mil., Canton, Chgo., La Crosse, K. C.

Dampers—Quadrants—Accessories
Aeolus Dickinson Chicago, Ill.
Hart & Cooley Co., Holland, Mich.
Milcor Steel Co., Mil., Canton, Chgo., La Crosse, K. C.
Parker-Kalon Corp., New York, N. Y.

Dampproofings
Lastik Products Corp., Pittsburgh, Pa.

Damper Regulators
Sheer Co., H. M., Quincy, Ill.

Diffuser—Air Duct
Aeolus Dickinson Chicago, Ill.

Drills—Electric
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.
J. M. & L. A. Osborn Co., Cleveland, Ohio
The Stanley Electric Tool Co., New Britain, Conn.

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Parker-Kalon Corp., 190 Varick St., New York

Dust Eliminator
Dustless Ash Co., Muskegon, Mich.

Eaves Trough
Barnes Metal Products Co., Chicago, Ill.
Berger Bros. Co., Philadelphia, Pa.
Chase Brass & Copper Co., Waterbury, Conn.
Milcor Steel Co., Mil., Canton, Chgo., La Crosse, K. C.
Rockford Sheet Steel Co., Rockford, Ill.

Elbows and Shoes—Conductor
Apex Gutter Hanger Corp., New York, N. Y.
Barnes Metal Products Co., Chicago, Ill.
Milcor Steel Co., Mil., Canton, Chgo., La Crosse, K. C.
Rockford Sheet Steel Co., Rockford, Ill.

Fittings—Conductor
Barnes Metal Products Co., Chicago, Ill.
Braden Mfg. Co., Terre Haute, Ind.
Milcor Steel Co., Mil., Canton, Chgo., La Crosse, K. C.

Fluxes—Soldering
Kester Soldering Co., Chicago, Ill.

Furnace Cement
Connors Paint Mfg. Co., Wm., Troy, N. Y.
Lastik Products Corp., Pittsburgh, Pa.
Milcor Steel Co., Mil., Canton, Chgo., La Crosse, K. C.

Furnace Chain
Hart & Cooley Co., Holland, Mich.

Furnace Cleaners—Suction
Brillion Furnace Co., Brillion, Wis.
National Super Service Co., Toledo, Ohio

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American Fdy. & Furnace Co., Bloomington, Ill.
Brundage Co., The, Kalamazoo, Mich.
Lakeside Co., Hermansville, Mich.
Robinson Co., A. H., Massillon, Ohio
Warm Air Furnace Fan Co., Cleveland, Ohio
Watt Mfg. Co., Sterling, Ill.

Furnace Filters
Warm Air Furnace Fan Co., Cleveland, Ohio

Furnace Paste
Western Mineral Products Co., Omaha, Neb.

Furnace Pokers
Fanner Mfg. Co. Cleveland, Ohio

Furnace Pulleys
Hart & Cooley Co., Holland, Mich.

Furnace Regulators
Minneapolis-Honeywell Regulator Co., Minneapolis, Minn.
Sheer Co., H. M., Quincy, Ill.
White Mfg. Co., Minneapolis, Minn.

Furnace Rings
Forest City-Walworth Run Foundries Co., Cleveland, Ohio
Milcor Steel Co., Mil., Canton, Chgo., La Crosse, K. C.

Furnace Switch—Automatic
Payne Furnace & Supply Co., Beverly Hills, Cal.
Robinson Co., A. H., Massillon, Ohio

Furnaces—Gas
Calkins & Pearce, Columbus, Ohio
Mueller Furnace Co., L. J., Milwaukee, Wis.
Payne Furnace & Supply Co., Beverly Hills, Cal.
Robinson Co., A. H., Massillon, Ohio
Rudy Furnace Co., Dowagiac, Mich.
Wise Furnace Co., Akron, Ohio

Furnaces—Oil Burning
Motor Wheel Corp., Heater Div., Lansing, Mich.

Furnaces—Warm Air
Agricola Furnace Co., Gadsden, Ala.
American Fdy. & Furnace Co., Bloomington, Ill.
American Furnace Co., St. Louis, Mo.
The Beckwith Co., Dowagiac, Mich.
Brillion Furnace Co., Brillion, Wis.
Farris Furnace Co., Springfield, Ill.
Forest City-Walworth Run Fdy., Cleveland, Ohio
Fox Furnace Co., Elyria, Ohio
Henry Furnace & Fdy. Co., Cleveland, Ohio
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Langenberg Mfg. Co., St. Louis, Mo.
London Furnace Co., London, Ohio
Lennox Furnace Co., Marshalltown, Iowa Syracuse, N. Y.
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Mueller Furnace Co., L. J., Milwaukee, Wis.
Payne Furnace & Supply Co., Beverly Hills, Cal.
Premier Warm Air Heater Co., Dowagiac, Mich.
Peerless Foundry Co., Indianapolis, Ind.
Robinson Co., A. H., Massillon, Ohio
Rudy Furnace Co., Dowagiac, Mich.
Success Heater Mfg. Co., Des Moines, Iowa
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Waterman-Waterbury Co., Minneapolis, Minn.
Western Steel Products Co., Duluth, Minn.
Wise Furnace Co., Akron, Ohio

Gas Burning Attachments
Munkel-Rippel Heating Co., Columbus, Ohio

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Harrington & King Perforating Co., Chicago, Ill.
Hart & Cooley Co., New Britain, Conn.
Independent Register & Mfg. Co., Cleveland, Ohio
Tuttle & Bailey Mfg. Co., Chicago, Ill.

Guards—Machine and Belt
Harrington & King Perforating Co., Chicago, Ill.

Handles—Boiler
Berger Bros. Co., Philadelphia, Pa.

Handles—Soldering Iron
Hyro Mfg. Co., New York, N. Y.

Handles—Furnace Door
Fanner Mfg. Co., Cleveland, Ohio

Hangers—Eaves Trough
Apex Gutter Hanger Corp., New York, N. Y.
Berger Bros. Co., Philadelphia, Pa.
Chase Brass & Copper Co., Waterbury, Conn.
Milcor Steel Co., Mil., Canton, Chgo., La Crosse, K. C.

Heat Regulation Systems
Minneapolis-Honeywell Regulator Co., Minneapolis, Minn.
Sheer Co., H. M., Quincy, Ill.
White Mfg. Co., Minneapolis, Minn.

Heaters—Cabinet
Fox Furnace Co., Elyria, Ohio
Mt. Vernon Furnace & Mfg. Co., Mt. Vernon, Ill.
Payne Furnace & Supply Co., Beverly Hills, Cal.
Waterman-Waterbury Co., Minneapolis, Minn.

Heaters—School Room
Meyer Furnace Co., The, Peoria, Ill.
Western Steel Products Co., Duluth, Minn.
Waterman-Waterbury Co., Minneapolis, Minn.

Humidifiers
Diener Mfg. Co., G. W., Chicago, Ill.
Meyer & Bro. Co., F., Peoria, Ill.
Sheer Co., H. M., Quincy, Ill.

Lath—Expanding Metal
Milcor Steel Co., Mil., Canton, Chgo., La Crosse, K. C.

Machines—Crimping
Bertsch & Co., Cambridge City, Ind.

Machinery—Culvert
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Machines—Tinsmith's
Bertsch & Co., Cambridge City, Ind.
Dreis & Krump Mfg. Co., Chicago, Ill.
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Interstate Machinery Co., Chicago, Ill.
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Osborn Co., The J. M. & L. A., Cleveland, Ohio
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.
The Stanley Electric Tool Co., New Britain, Conn.
Whitney Mfg. Co., W. A., Rockford, Ill.

Metals—Perforated
Harrington & King Perforating Co., Chicago, Ill.

Miters—Eaves Trough
Barnes Metal Products Co., Chicago, Ill.
Berger Bros. Co., Philadelphia, Pa.
Braden Mfg. Co., Terre Haute, Ind.
Milcor Steel Co., Mil., Canton, Chgo., La Crosse, K. C.

Nails—Copper and Brass
Chase Brass & Copper Co., Waterbury, Conn.
Revere Copper & Brass, Rome, N. Y.

(Continued on page 56)

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THE J.M.&L.A.
OSBORN Co
EVERYTHING
USED IN SHEET METAL WORK
ASK FOR CATALOGUE OR PRICES

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CLEVELAND, OHIO
Plants at Cleveland and Kent, Ohio; Chicago and Birmingham

CHICAGO STEEL SLITTING SHEAR
LIGHT—POWERFUL
DURABLE

Capacity 10 gauge sheets
Any Length or Width
Flat Bars 3/16x2"
Weight 22 pounds
Price $15.00 Net
F. O. B. Chicago
Made of pressed steel and equipped with hold-down. Blades of highest grade crucible steel. Most indispensable high grade shears made. Equal to other shears selling at over twice the price. *ORDER YOURS TODAY.*
DREIS & KRUMP MFG. CO., 7404 Loomis St., Chicago

The "Torrid" Furnace is designed to give a tremendous amount of heat, much more than that furnished by the ordinary tinner's furnace.
A fuel saver and generating machine of the finest quality made at the price.
GEO. W. DIENER MFG. CO.
404 North Monticello Ave. Chicago

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WHITNEY Lever PUNCHES

This type of extra punches and dies used in Punches Nos.
1
2
4
No. 6 Skylight
8
and
Channel Iron, also Nos.
5
7
and
Imperial No. 8

This type of extra punches and dies used in Punches Nos.
10
11
12
14
15
20
24
25
40
and
40A

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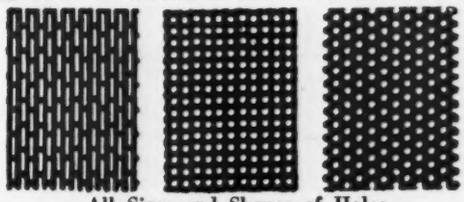
636 Race Street Rockford, Ill.

PERFORATED METALS

All Sizes and Shapes of Holes
In Steel, Zinc, Brass, Copper, Tinplate, etc.
For All Screening, Ventilating and Draining
EVERYTHING IN PERFORATING METAL
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IMMEDIATE SHIPMENT FROM STOCK
More than twenty kinds of prime quality sheets are carried in stock. There is a special sheet for every purpose. Also Bars, Angles, Rivets, Bolts, Tools and Metal-Working Machinery.
Write for Journal and Stock List
JOSEPH T. RYERSON & SON INC
Chicago Detroit Milwaukee St. Louis Jersey City Cincinnati Buffalo Cleveland Philadelphia Boston
SHEETS

BUYERS' DIRECTORY

(Continued from page 54)

Nails—Hardened Masonry
Parker-Kalon Corp., New York, N. Y.

Oil Burners
Bock Oil Burner Co., Madison, Wis.
Crystal Oil Burner Corp., New York, N. Y.
Mellvaine Burner Corp., Evanston, Ill.
Silent Automatic Corp., Detroit, Mich.

Paint
Connors Paint Mfg. Co., Wm., Troy, N. Y.

Perforated Metals
Harrington & King Perforating Co., Chicago, Ill.

Pipe and Fittings—Furnace
Henry Furnace & Fdy. Co., Cleveland, Ohio
Lamneck & Co., W. E., Columbus, Ohio
Meyer & Bro. Co., F., Peoria, Ill.
Milcor Steel Co., Mil., Canton, Chgo., La Crosse, K. C.
Mueller Furnace Co., L. J., Milwaukee, Wis.
Osborn Co., The J. M. & L. A., Cleveland, Ohio
Peerless Foundry Co., Indianapolis, Ind.

Pipe and Fittings—Stove
Meyer & Bro. Co., F., Peoria, Ill.
Milcor Steel Co., Mil., Canton, Chgo., La Crosse, K. C.

Pipe—Conductor
Barnes Metal Products Co., Chicago, Ill.
Berger Bros. Co., Philadelphia, Pa.
Milcor Steel Co., Mil., Canton, Chgo., La Crosse, K. C.

Punches
Bertsch & Co., Cambridge City, Ind.
Hyro Mfg. Co., New York
Interstate Machinery Co., Chicago, Ill.
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.
W. A. Whitney Mfg. Co., Rockford, Ill.

Punches—Combination Bench and Hand
Hyro Mfg. Co., New York, N. Y.

Punches—Hand
Hyro Mfg. Co., New York, N. Y.
W. A. Whitney Mfg. Co., Rockford, Ill.

Putty—Stove
Connors Paint Mfg. Co., Wm., Troy, N. Y.

Radiator Cabinets
Hart & Cooley Co., Holland, Mich.

Ranges—Gas
The Beckwith Co., Dowagiac, Mich.
Mt. Vernon Furnace & Mfg. Co., Mt. Vernon, Ill.
Richardson & Boynton Co., New York, N. Y.

Registers—Warm Air
Auer Register Co., Cleveland, Ohio
Forest City-Walworth Run Foundries Co., Cleveland, Ohio
Hart & Cooley Co., Holland, Mich.
Henry Furnace & Fdy. Co., Cleveland, Ohio
Independent Register & Mfg. Co., Cleveland, Ohio
Ku-No Register Mfg. Co., St. Louis, Mo.
Lamneck & Co., W. E., Columbus, Ohio
Meyer & Bro. Co., F., Peoria, Ill.
Milcor Steel Co., Mil., Canton, Chgo., La Crosse, K. C.
Mueller Furnace Co., L. J., Milwaukee, Wis.
Rock Island Register Co., Rock Island, Ill.
Symonds Register Co., St. Louis, Mo.
Tuttle & Bailey Mfg. Co., Chicago, Ill.

Registers—Wood
American Wood Register Co., Plymouth, Ind.
Auer Register Co., Cleveland, Ohio
Milcor Steel Co., Mil., Canton, Chgo., La Crosse, K. C.

Regulators—Heat
Minneapolis-Honeywell Regulator Co., Minneapolis, Minn.
H. M. Sheer Co. Chicago, Ill.
White Mfg. Co., Minneapolis, Minn.

Ridging
American Rolling Mill Co., Middletown, Ohio
Milcor Steel Co., Mil., Canton, Chgo., La Crosse, K. C.

Rivets—Stove
Lamson & Sessions Co., Cleveland, Ohio
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

Rods—Stove
Lamson & Sessions Co., Cleveland, Ohio

Rolls—Forming
Bertsch & Co., Cambridge City, Ind.
Interstate Machinery Co., Chicago, Ill.

Roofing Cement
Connors Paint Mfg. Co., Wm., Troy, N. Y.
Lastik Products Corp., Pittsburgh, Pa.

Roof Paints
Lastik Products Corp., Pittsburgh, Pa.

Roof—Flashing
Milcor Steel Co., Mil., Canton, Chgo., La Crosse, K. C.

Roofing—Iron and Steel
American Rolling Mill Co., Middletown, Ohio
Central Alloy Division, Republic Steel Corp., Youngstown, Ohio
Inland Steel Co., Chicago, Ill.
Milcor Steel Co., Mil., Canton, Chgo., La Crosse, K. C.
Osborn Co., The J. M. & L. A., Cleveland, Ohio
Ryerson & Sons, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

Roofing—Tin
Milcor Steel Co., Mil., Canton, Chgo., La Crosse, K. C.
Taylor Co., N. & G., Philadelphia, Pa.

Rubbish Burners
Hart & Cooley Co., New Britain, Conn.

Schools—Sheet Metal Pattern Drafting
St. Louis Technical Institute, St. Louis, Mo.

Schools—Warm Air Heating
St. Louis Technical Institute, St. Louis, Mo.

Screws—Hardened Metallic Drive
Milcor Steel Co., Mil., Canton, Chgo., La Crosse, K. C.
Parker-Kalon Corp., 200 Varick St., New York

Screws—Hardened Self-Tapping, Sheet Metal
Milcor Steel Co., Mil., Canton, Chgo., La Crosse, K. C.
Parker-Kalon Corp., 200 Varick St., New York

Screens—Perforated Metal
Harrington & King Perforating Co., Chicago, Ill.

Scuppers
Aeolus Dickinson Chicago, Ill.

Shears—Hand and Power
Interstate Machinery Co., Chicago, Ill.
Marshalltown Mfg. Co., Marshalltown, Ia.
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.
The Stanley Electric Tool Co., New Britain, Conn.
Viking Shear Co., Erie, Pa.

Sheet Metal Screws—Hardened, Self-Tapping
Parker-Kalon Corp., 200 Varick St., New York

Sheets—Alloy
Central Alloy Division, Republic Steel Corp., Youngstown, Ohio
International Nickel Co., New York, N. Y.

Sheets—Black and Galvanized
American Rolling Mill Co., Middletown, Ohio
Central Alloy Division, Republic Steel Corp., Youngstown, Ohio
Inland Steel Co., Chicago, Ill.
Milcor Steel Co., Mil., Canton, Chgo., La Crosse, K. C.
Osborn Co., The J. M. & L. A., Cleveland, Ohio
Rockford Sheet Steel Co., Rockford, Ill.
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.
Taylor Co., N. & G., Philadelphia, Pa.

Sheets—Iron
American Rolling Mill Co., Middletown, Ohio
Central Alloy Division, Republic Steel Corp., Youngstown, Ohio
Milcor Steel Co., Mil., Canton, Chgo., La Crosse, K. C.
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

Sheets—Tin
Taylor Co., N. & G., Philadelphia, Pa.

Shingles and Tiles—Metal
Milcor Steel Co., Mil., Canton, Chgo., La Crosse, K. C.

Sifters—Ash
Diener Mfg. Co., G. W., Chicago, Ill.

Sign Equipment—Electric
Metal Products Co., Milwaukee, Wis.

Sky Lights
Milcor Steel Co., Mil., Canton, Chgo., La Crosse, K. C.

Snips
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

Solder—Acid Core
Kester Solder Co., Chicago, Ill.

Solder—Self-Fluxing
Kester Solder Co., Chicago, Ill.

Solder—Rosin Core
Kester Solder Co., Chicago, Ill.

Solder
Kester Solder Co., Chicago, Ill.
Milcor Steel Co., Mil., Canton, Chgo., La Crosse, K. C.

Soldering Coppers
Revere Copper & Brass, Rome, N. Y.

Soldering Furnaces
Diener Mfg. Co., G. W., Chicago, Ill.
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

Specialties—Hardware
Diener Mfg. Co., G. W., Chicago, Ill.

Stars—Hard Iron Cleaning
Fanner Mfg. Co., Cleveland, Ohio

Tinplate
Milcor Steel Co., Mil., Canton, Chgo., La Crosse, K. C.
Osborn Co., The J. M. & L. A., Cleveland, Ohio
Taylor Co., N. & G., Philadelphia, Pa.

Tools—Tinsmith's
Bertsch & Co., Cambridge City, Ind.
Dries & Krump Mfg. Co., Chicago, Ill.
Hyro Mfg. Co., New York, N. Y.
Interstate Machinery Co., Chicago, Ill.
Osborn Co., The J. M. & L. A., Cleveland, Ohio
Rockford Sheet Steel Co., Rockford, Ill.
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.
The Stanley Electric Too. Co., New Britain, Conn.
Viking Shear Co., Erie, Pa.
Whitney Mfg. Co., W. A., Rockford, Ill.

Torches
Diener Mfg. Co., G. W., Chicago, Ill.
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

Trade Extension
Copper & Brass Research Association
National Association of Flat Rolled Steel Manufacturers, Cleveland, Ohio

Trimmings—Stove and Furnace
Fanner Mfg. Co., Cleveland, Ohio

Vacuum Cleaner—Furnace
Brillion Furnace Co., Brillion, Wis.
National Super Service Co., Toledo, Ohio

Ventilators—Floor
Aeolus Dickinson Chicago, Ill.

Ventilators—Roof
Aeolus Dickinson Chicago, Ill.
Berger Bros. Co., Philadelphia, Pa.
Paul R. Jordan & Co., Indianapolis, Ind.
Milcor Steel Co., Mil., Canton, Chgo., La Crosse, K. C.

Ventilators—Ceiling
Hart & Cooley Co., New Britain, Conn.
Henry Furnace & Fdy. Co., Cleveland, Ohio

Wood Faces—Warm Air
Auer Register Co., Cleveland, Ohio
American Wood Register Co., Plymouth, Ind.
Milcor Steel Co., Mil., Canton, Chgo., La Crosse, K. C.

Exclusive superior fabrication *Double seamed reinforced corner*

TRADE BB MARK

Made in Galvanized Steel

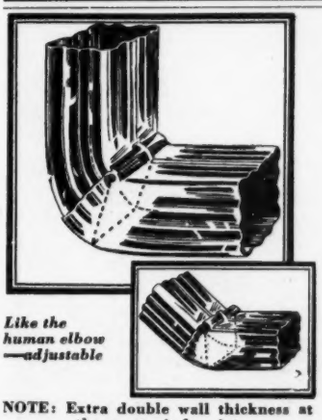
ARMCO IRON

TONCAN METAL AND COPPER

Sold by all leading Jobbers

Made by
BERGER BROS. CO.
229 to 237 Arch Street, Philadelphia, Pa.

Western Office
140 S. Dearborn St.
Chicago



Like the human elbow —adjustable

NOTE: Extra double wall thickness at the most vital point

You have been waiting for this *adjustable* down-spout elbow—

THE "MASTER" ADJUSTABLE ELBOW

Is a Time and Labor Saver

This patented elbow can be adjusted to any degree of pitch between 15 and 90°. No tools are needed. The patented features of this elbow enable you to connect gutter and down spout in a few seconds.

The Most Revolutionary Time and Labor Saver of Recent Years
No Higher Cost for the "Master" Elbow

Further Information on Request

APEX GUTTER HANGER CORP. 15 MOORE STREET NEW YORK CITY

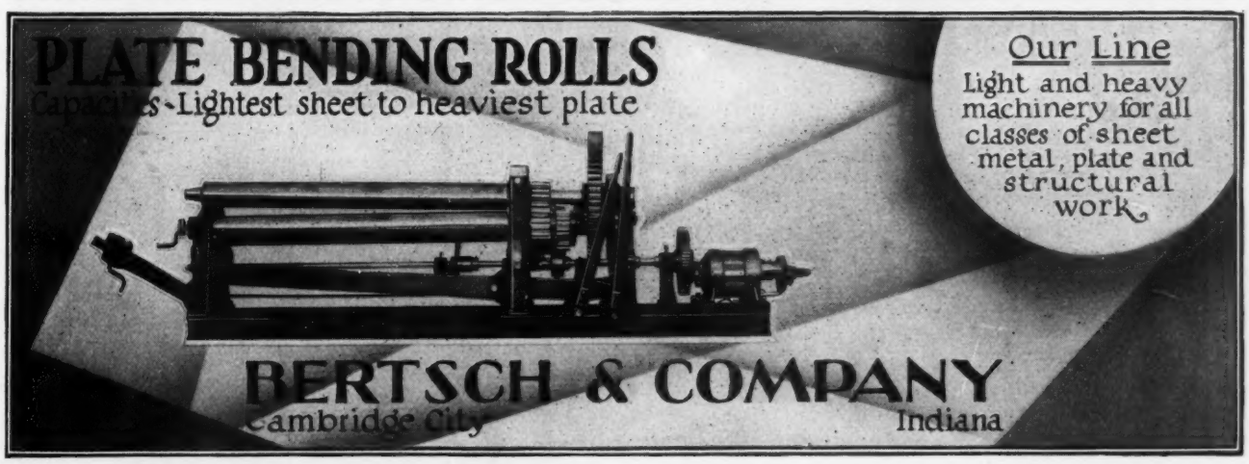


PLATE BENDING ROLLS
Capacities-Lightest sheet to heaviest plate
Our Line
Light and heavy machinery for all classes of sheet metal, plate and structural work
BERTSCH & COMPANY
Cambridge City
Indiana

Order a trial can now — it will not sour — keeps any length of time.

A new furnace paste

FOR BETTER, NEATER AND QUICKER WORK

Non-Cereal—Non-Souring

Asbestos Paper will not absorb it as it does cereal pastes. Paper does not become soggy—not so apt to tear.

Larco Mineral Paste does not turn brown—no stains—mice will not touch it either when moist or dry and it does not gum up the hands.

Larco Paste can be kept on hand mixed ready for use. It has greater covering qualities. It slips easily but adheres permanently.

Write for circular which tells all about it—get Larco prices.

WESTERN MINERAL PRODUCTS CO.
OMAHA *(Formerly Larsen-Bennett Co.)* NEBRASKA

"American Seal"

FURNACE CEMENT

Roof Cement—Stove Putty
Plumbers Putty

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WILLIAM CONNORS PAINT MFG. CO.
Established 1852
TROY NEW YORK

JAMES L. PERKINS, Western Distributor
140 South Dearborn Street, Chicago, Illinois

Alphabetical List *of* Advertisers

Firms represented in this issue are identified by the folio of the page on which their advertising appears. Advertising which appears in alternate issues is marked with an asterisk.

A-C Mfg. Co. 21
Aeolus Dickinson* ....
Agricola Furnace Co.* ....
American Brass Co.* ....
American Fdy. & Furn. Co. 21
American Furnace Co.* ....
American Machine Products Co. 16
American Rolling Mill Co.* ....
American Wood Register Co. 20
Apex Gutter Hanger Corp. 57
Auer Register Co.* ....
Barnes Metal Prod. Co. 60
Beckwith Co. 12
Berger Bros. Co. 57
Bertsch & Co. 57
Bock Oil Burner Co. 21
Braden Mfg. Co.* ....
Brillion Furnace Co. 19
Brundage Co. 19
Calkins & Pearce* ....
Central Alloy Division Republic Steel Corp.* ....
Chase Brass & Copper Co.* ....
Connors Paint Co., Wm. 57
Copper and Brass Research Assn. 49
Crystal Oil Burner Co.* ....
Diener Mfg. Co., Geo. W. 55
Dreis & Krump Mfg. Co. 55
Dustless Ash Co. 18
Eissler Hardware 20
Fafnir Bearing Co. 15
Fanner Mfg. Co. 20
Farris Furnace Co. 11
Forest City-Walworth Run Foundries Co.* ....
Fox Furnace Co.* ....
Gehri, A., & Co. 7 & 8
Harrington & King Perf. Co. 55
Hart & Cooley Co. 17
Henry Furn. & Fdy. Co. 6
Hess Warming & Ventilating Co. 10
Howes Co., S. M.* ....
Hyro Mfg. Co. 51
Independent Reg. & Mfg. Co.* ....
Inland Steel Co.* ....
International Nickel Co. 24
Interstate Machinery Co. 59
Jordan & Co., Paul R.* ....
Kester Solder Co.* ....
Ku-No Register Mfg. Co.* ....
Lakeside Co. 18
Lammeck & Co., W. E.* ....
Lamson & Sessions Co., The 55
Langenberg Mfg. Co.* ....
Lastik Products Co. 20
Lennox Furnace Co. 12
London Furnace Co.* ....
Marshall Furnace Co.* ....
Marshalltown Mfg. Co.* ....
May-Fiebeger Co. 11
McIlvaine Burner Corp. 61
Metal Products, Inc.* ....
Meyer & Bro. Co., F. 13
Meyer Furnace Co.* ....
Midland Furnace Co. 9
Milcor Steel Co. Back Cover
Miller & Doing, Inc.* ....
Minneapolis-Honeywell Reg. Co. 14
Motor Wheel Corp., Heater Div. 5
Munkel-Rippel Heating Co. 18
Mt. Vernon Furnace & Mfg. Co. 12
Mueller Furnace Co.* ....
National Assn. of Flat Rolled Steel Mnfrs.* ....
National Super Service Co. 19
Osborn Co., The J. M. & L. A. 55
Parker-Kalon Corp.* ....
Payne Furnace & Supply Co.* ....
Peck, H. E. 59
Peerless Foundry Co.* ....
Premier Warm Air Heater Co. 23
Republic Steel Corp.* ....
Revere Copper & Brass, Inc.* ....
Richardson & Boynton Co.* ....
Robinson Co., A. H.* ....
Rock Island Register Co.* ....
Rockford Sheet Steel Co.* ....
Rudy Furnace Co.* ....
Ryerson & Son, Inc., Jos. T. 55
Schwab & Sons Co., R. J. 12
Sheer Co., H. M. 18
Silent Automatic Corp.* ....
Standard Fdy. & Furn. Co.* ....
Stanley Electric Tool Co. 53
St. Louis Tech. Inst. 59
Success Heater Mfg. Co. 2
Symonds Register Co.* ....
Taylor Co., N. & G.* ....
Tuttle & Bailey Mfg. Co.* ....
Viking Shear Co. 59
Warm Air Furnace Fan Co. 16
Watt Mfg. Co. 18
Waterman-Waterbury Co. 3
Western Mineral Products Co. 57
Western Steel Products Co. 4
White Mfg. Co.* ....
Whitney Mfg. Co., W. A. 55
Wise Furnace Co. 12

THE BUYERS' DIRECTORY APPEARS ON PAGES 54 AND 56

WANTS AND SALES

Yearly subscribers to the AMERICAN ARTISAN may insert advertisements of not more than fifty words in our Want and Sales Columns WITHOUT CHARGE for three insertions.

Such advertisements, however, must be limited to help or situation wanted, tools or equipment for sale, to exchange or to buy, business for sale or location desired, and must reach our office ten days prior to date of publication. This privilege is not extended to manufacturers or jobbers—or those making a business of buying and selling used machines—employment agencies and brokers.

When sending advertisement state whether your name or blind number is to be used.

BUSINESS CHANCES

For Sale—Tin and repair shop. Equipped with good machinery and supplies. Only shop in town of its kind. Will sell outright or separately on account of ill health. This is a good opportunity and will stand investigating. Address D-526, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

For Sale—Established sheet metal, furnace and roofing business in the best county seat town in Northern Minnesota. Shop is well equipped including 8 foot brake and all tools are in first class shape. This is a real buy for someone as I must dispose of shop at once. Other interests reason for selling. Address E-526, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

SITUATION WANTED

Situation Wanted—Young man 29 years of age with 8 years' experience in large tin shop, wants position. Can qualify in cornice, skylight, blowpipe, furnace work, gutters and all tin work that comes into a tin shop. Also experienced in roofing such as slate, tile, tin or built up roofs. Can also draught my own patterns. Married and steady. Address A-526, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

Situation Wanted—By first class sheet metal worker, plumber and warm air furnace heating man. Would like a position with hardware firm. Iowa or Illinois preferred. Address B-526, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

Situation Wanted—By practical sheet metal worker on cornice, skylight, heating, ventilation and blowpipe. Estimator and layout man. Middle aged and reliable. Will go anywhere. Address C-526, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

STOP *Trying to seal furnaces with* **CLAY**
USE **METALUTE** (Plastic Iron)
Order 12 lb. can at $2.40 or demand it with the furnace
Technical Products Co.
Sharpsburg St., Pittsburgh, Pa,

HELP WANTED

Wanted—Tinner and furnace man for country town of 3000 in southeastern Wisconsin. Married man preferred. Must be good workman and hustler. Steady job the year around, rain or shine. Hardware store in connection. State wages wanted and when you can come. Floaters and boozers not wanted. Send references so we can look you up. Address W-525, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

Salesmen Wanted—To sell a low priced all electrical heat regulator for warm air, steam, vapor, and hot water heaters to the trade. Liberal commission. Product of an old reliable manufacturer of temperature regulating specialties. State age and experience. Address X-525, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

Salesman Wanted—To sell our line. Big opportunity to right man. See advertisement on page 18. Should have sales experience in hot air furnaces. Send references. State territory wanted. Write today. Watt Manufacturing Company, 301 East Third St., Sterling, Illinois. Y-525

Wanted—Sheet metal worker and furnace man. One steady and reliable who understands heating and ventilating and can work from blue prints and understands how to read blue prints. This is a good steady job for the right man. Address Barnett's Sheet Metal Works, Dodge City, Kan. L-524

Salesman Wanted—Some knowledge of heating to sell McIlvaine Oil Burners. Good field to work in. You must act quick as season is well under way. Address H. R. Wolfe Sheet Metal Works, 301 East Broadway, Waukesha, Wis. K-524

Wanted—Tinner and furnace man, must be good clean workman. Southern Wisconsin town. State wages and how soon you can come. Need man at once. Address H-525, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

Wanted—A sheet metal worker with furnace installation experience. Must also be able to do plumbing work as well as pump work. Address Johnson Brothers, Little Rock, Iowa. T-525

TOOLS AND MACHINES

Wanted—Used 8 foot all steel brake 18 ga. capacity. 1—30" forming roll, 1—30" pipe folder, 1—crimper and beader, 1—5" vise. State condition, price and make. Address R. J. Reichenback, 1308 Marsac Street, Bay City, Mich. S-525

Wanted—Tinners' tools, must be in good condition and priced right. Give list of tools for sale. Address Earl S. Beaudry, Newton, Kansas. P-525

For Sale—One Sturtevent Vacuum Furnace Cleaner in good condition. Price $150.00. Address R. Brands, Morrison, Ill. R-525

SPECIAL NOTICES

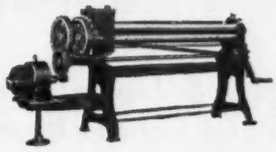
The Rate for Special Notices —displayed want ads— $3.00 per inch per insertion

When sending copy, state whether your name or blind number is to be used—also how many insertions are desired.

PATENTS
HUBERT E. PECK
Patent Attorney
Barrister Bldg., WASHINGTON, D. C.

Sheet Metal Work—In motor vehicle and aircraft building plants of particular interest to layout men. Copyrighted descriptive booklet sent postpaid for three dimes. Address P. O. Box 12, Pontiac, Mich. Z-525

PRICED to SELL — READY to SHIP



Money Back Guarantee

2—Mighty Midget, Unishears latest model. Brand New .....Each $56.00
37 x 3½ Niagara Power Roll on Stand..$100.00
8' 16 ga. Chicago Steel Brake.....$150.00
72" 10 ga. Niagara Gap Shear.....$650.00
36" 18 ga. Pexto Foot Shear.....$90.00

Send for list of used machinery in stock

INTERSTATE MACHINERY COMPANY
601 WEST MONROE STREET CHICAGO, ILLINOIS

MEN WANTED!
To
Prepare for the New Business Cycle
This 1930-31 Is Your Greatest Opportunity

Business in general is starting on its upward swing. Don't wait to see and lose out; but Prepare this Fall, Winter and Spring to open new doors of Opportunity. We have just revised and enlarged our unexcelled Home Study Courses. They are now brand new, giving you 1931 Trade conditions. This is our 21st year in Training Monarchs of the Trade. Let us include YOU in our Student Body this Fall— helping you secure more steady work, better positions and opportunities— that come only through the open door of a Technical Training.

Every interested man should write NOW for his copy of our new Directory; it is free to ambitious men anxious for Advancement. Write today. Check your Course.

☐ Sheet Metal Design and Pattern Drafting. ☐ Special Warm Air and Forced Air Heating.
☐ Specialized Short Sheet Metal Courses. ☐ Air Conditioning for Fan H. & V. Eng.
☐ Heating Ventilating Engineering. ☐ Contracting and Estimating.

THE ST. LOUIS TECHNICAL INSTITUTE 4543 CLAYTON AVE. ST. LOUIS, MO.

VIKING SHEAR
Compound LEVER Handle—Removable Blades
A child can work them
Send for catalog today
VIKING SHEAR CO., Erie, Pa.

The Embossed Trade Mark

Barnes

Means:

Reliable, Square-Deal Products
Full-Weight Material
Exclusive Appearance

●

And Remember:

The Barnes Super-Line Cost No More Than the Ordinary Sheet Metal Products

The Barnes Complete Line of Conductor Pipe, Eaves Trough and Fittings in All Sizes and Metals to withstand All Climates

●

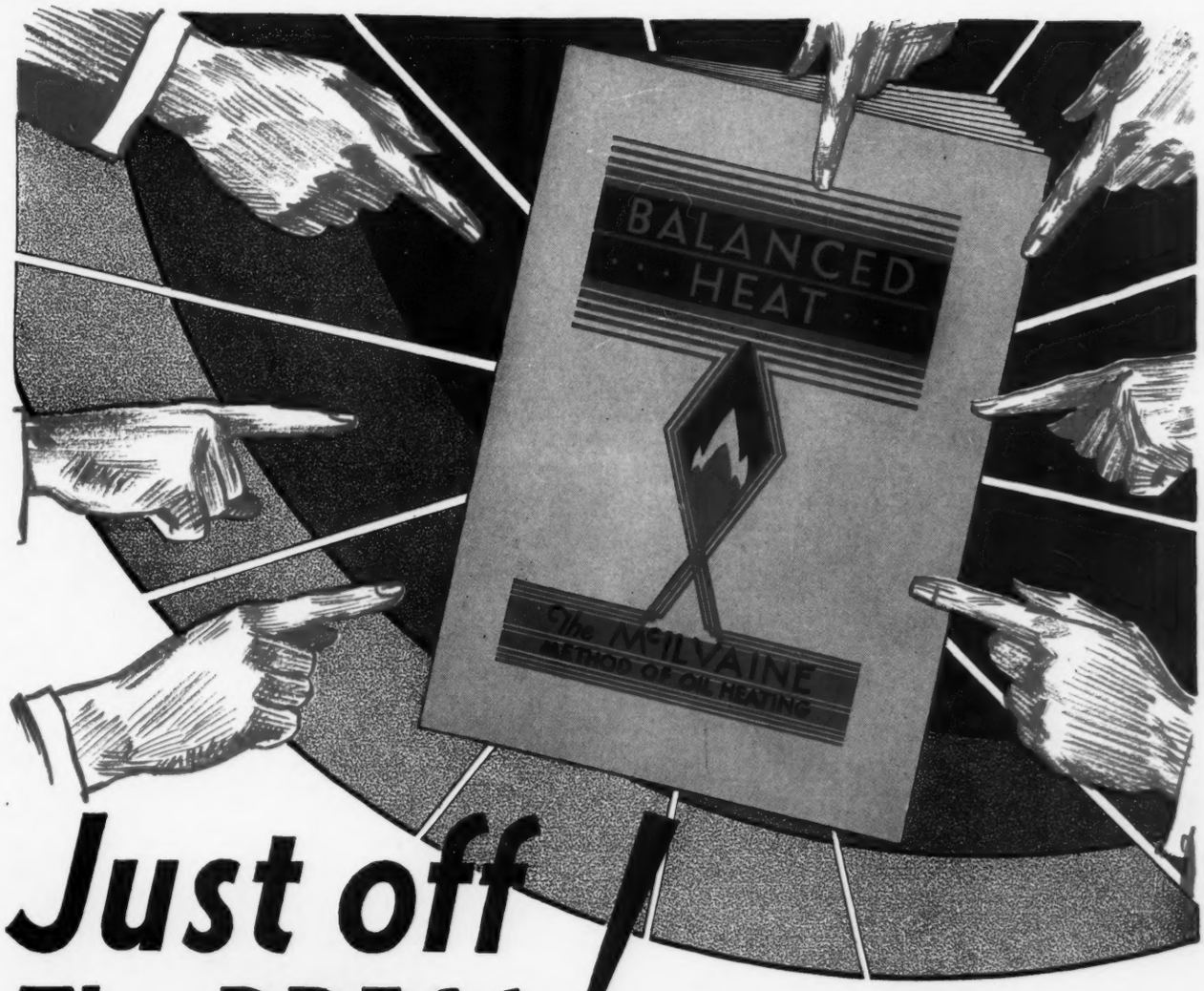
BARNES PRODUCTS Build Prestige and Profits for Sheet Metal Contractors

100% Jobber Cooperation as This Line is Sold Thru Jobbers Only

●

BARNES METAL PRODUCTS COMPANY
4425 W. 16TH STREET CHICAGO, ILLINOIS

Say you saw it in AMERICAN ARTISAN—Thank you!



Just off The PRESS! Write Now—

For This Free Book

Which Gives the Real Facts About Oil Burners!

This new book has created a sensation in the Oil Burner Industry. It contains 34 pages of facts that every oil burner dealer should know. Its publication marks a new era in the Oil Burner Industry. Facts cannot be denied! Laboratory tests cannot be "laughed off!" Actual Performance is convincing evidence that cannot be questioned! Balanced Heat is the only scientific method of heating with oil.

The McIlvaine Burner—fully protected by patents—operates on an entirely different principle from others, and is the only Oil Burner that exactly balances the heat loss caused by outside temperature conditions. It's the Ideal Method, and automatically maintains an indoor temperature that is always just right—comfortable and healthful. The McIlvaine excels in efficiency, economy and dependability.

Write for our Sales Plan and Liberal Proposition to Dealers

McILVAINE BURNER CORPORATION, 747 Custer Ave., Dept. A, Evanston, Ill.

McILVAINE OIL BURNER

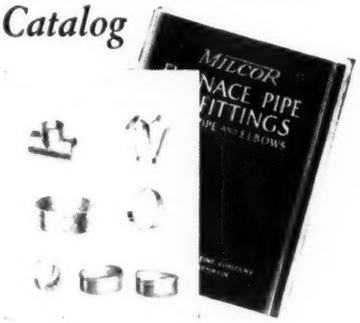
SELFLOCK Stove Pipe

Patent No. 1,715,008
— other patents pending

Quickest to Assemble Requires *Least* Storage Space

SNAP the joint . . . and it's locked to stay! The seam being on the outside, you can *see* that the joint is perfect from end to end. SELFLOCK stove pipe can be cut to any length . . . and the seam will not skip. 25 full joints packed in fibre container . . . for economical storage and easy transportation. Use this up-to-date *Milcor* SELFLOCK Stove Pipe. Write the nearest office.

Send for the Milcor Furnace Pipe Catalog



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